TECHNOLOGY DATA

JULY, 1950

Flow

OF MATERIALS THROUGH PROPER HANDLING AND PACKAGING METHODS

IN THIS ISSUE

Returnable Containers ... Engineered Packs for Jeep ... Canvas Belting II ... Diesel Locomotive as Yard Handler ... Complex Parts Simplified Handling

YOU CAN BE **SURE**.. IF IT'S

Westinghouse

LOCAL CHARGER SERVICE

ALL OVER THE MAP

. . . Yet at your door

Always there—if needed—Westinghouse Rectox Battery Charger Service. The scope is nationwide; yet service is local. 38 fully equipped Westinghouse Repair Plants serve the emergency needs of users and electric truck representatives. This means immediate service . . . fast answers to problems . . . no production delays.

Further, Rectox Battery Chargers save power. Reactors eliminate energy wasting resistors. Simple dials control operation from high to low range and no taps to adjust.

Rectox have proved their dependability over a 20-year period. Just plug them in and forget them. Complete facts are available from your local Westinghouse representative. Ask him for a copy of Descriptive Bulletins, DB-19-040 and 19-045, or write Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Penna. J-21569

WESTINGHOUSE

Westinghouse

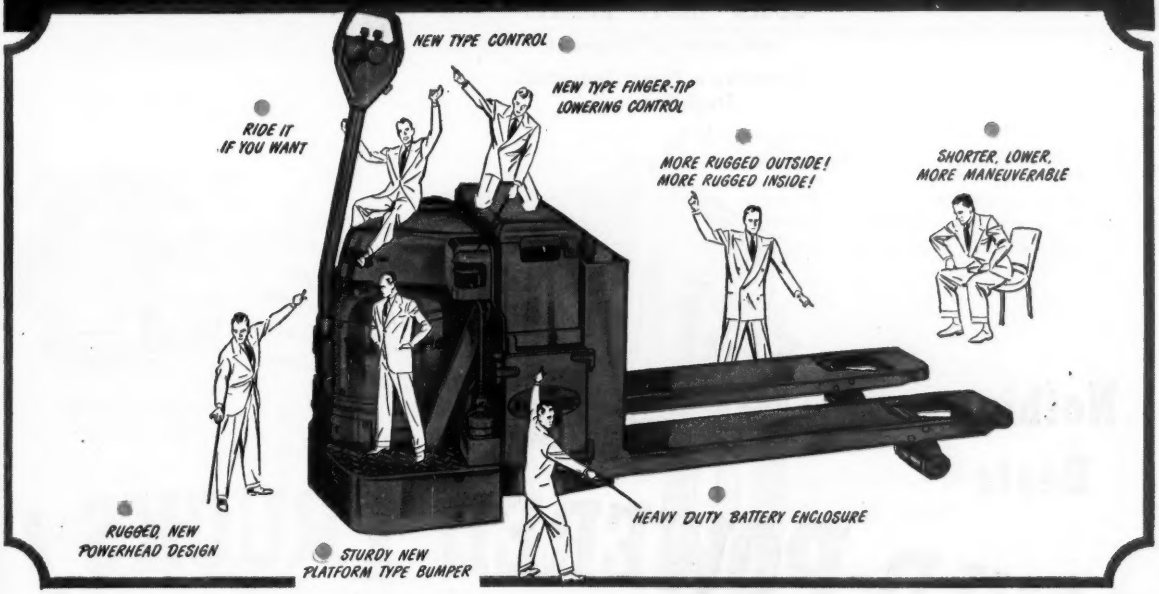
Rectox

Rectifiers & Chargers for ALL INDUSTRIES

ANNOUNCING THE

NEW RUGGED "101" TRANSPORTER

Famous Service-Proved Electric Truck That Saved Industry Millions in Handling Costs ADDS ALL-NEW DESIGN AND PERFORMANCE FEATURES TO SAVE YOU MORE MONEY!


NEW TYPE CONTROL
NEW TYPE FINGER-TIP LOWERING CONTROL
RIDE IT IF YOU WANT
MORE RUGGED OUTSIDE! MORE RUGGED INSIDE!
SHORTER, LOWER, MORE MANEUVERABLE
HEAVY DUTY BATTERY ENCLOSURE
RUGGED NEW POWERHEAD DESIGN
STURDY NEW PLATFORM TYPE BUMPER

Only "101" Transporter *Has Them All*

1. RUGGED NEW POWERHEAD DESIGN. Completely new cast drive housing for greater protection of all operating parts. **a:** Easily and quickly accessible for maintenance and adjustment. **b:** Final reduction fully enclosed gear drive. **c:** Brand new field tested motor, specially designed by Automatic engineers with 20% increased efficiency. **d:** Streamlined cast metal collector ring cover bolted securely to frame.

2. SHORTER, LOWER, MORE MANEUVERABLE. Pallet type trucks are approximately a foot shorter and the platform trucks are 5½" shorter. Increased maneuverability in tighter spaces, narrower aisles. All Transporters turn in their own length. New design affords better weight distribution, by increasing weight on drive wheel and decreasing weight on load wheels, with little increase in truck weight. Lower center of gravity gives more stability.

3. STURDY NEW PLATFORM TYPE BUMPER. Deep sectioned heavy duty platform type bumper with non-skid plate.

4. HEAVY NEW BATTERY ENCLOSURE. New enclosure completely encases battery for greater protection, has hinged doors and drop open lock for easy, quick battery changes.

5. NEW TYPE CONTROL. a: Control handle operates both speeds, low and high, forward and reverse, from any position including vertical. **b:** Two speed, forward and reverse buttons. Buttons are depressed ½ way for low speed, fully depressed for high speed. **c:** Improved safety handle. Broader hand guard and new flanges on grip for positive protection of hand and fingers.

6. NEW TYPE FINGER-TIP LOWERING CONTROL. Smooth, positive action. Operator controls speed of lowering action with touch of his finger. Lever enclosed for protection.

7. MORE RUGGED OUTSIDE—MORE RUGGED INSIDE. In design, engineering and construction, the new "101" Transporter has an overall ruggedness that pays off in hard usage, long service, minimum parts replacement.

FREE BOOKLET

Let us send you a really revealing booklet: *"How to Make Your Material Handling Pay Dividends."* It shows how you can cut your handling costs 50% to 75% . . . and with it, you get complete information on the *New* "101" Transporter features. Mail coupon.

More rugged *outside* and *inside,* now *New* "101" Transporter is even more *efficient* than the famous service-tested electric truck that's saving industry millions of dollars.

Look over the new features highlighted on this page. They represent advances that mean better performance, less maintenance, lower operating costs . . . *extra savings* in smooth, trouble-free handling.

In ability to lift, move and deposit up to 6,000 pound loads, "101" Transporter conserves energy, banishes backbreaking fatigue, is truly a worker's dream come true, management's answer to biggest savings at lowest cost.

Mail the coupon . . . and we will send you full particulars about the new features of "101" Transporter and how they can slice plenty off the 36% material handling cost that goes into every production dollar spent.

"101" Transporter
A PRODUCT OF AUTOMATIC
Lightens LIFE'S LOADS

Trade **Automatic** Mark
141 West 87th Street
Dept. K-5, Chicago 20, Ill.

Please send me complete facts about your new "101" TRANSPORTER, with free booklet: *"How to Make Your Material Handling Pay Dividends."*

Company Name.....

By.....*Title*.....

Street Address.....

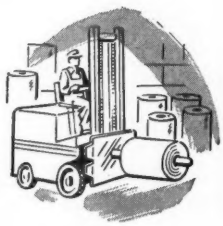
City.....*Zone*.....*State*.....

Trucks powered with Gould "Thirty" batteries go at full power months after ordinary batteries have begun to slow down.

96% of the entire working surface of Gould's new "Z" Plate is *regenerative* power-producing material. The grid itself is 66% more resistant to deterioration. Grid porosity is reduced 85%. This is why the

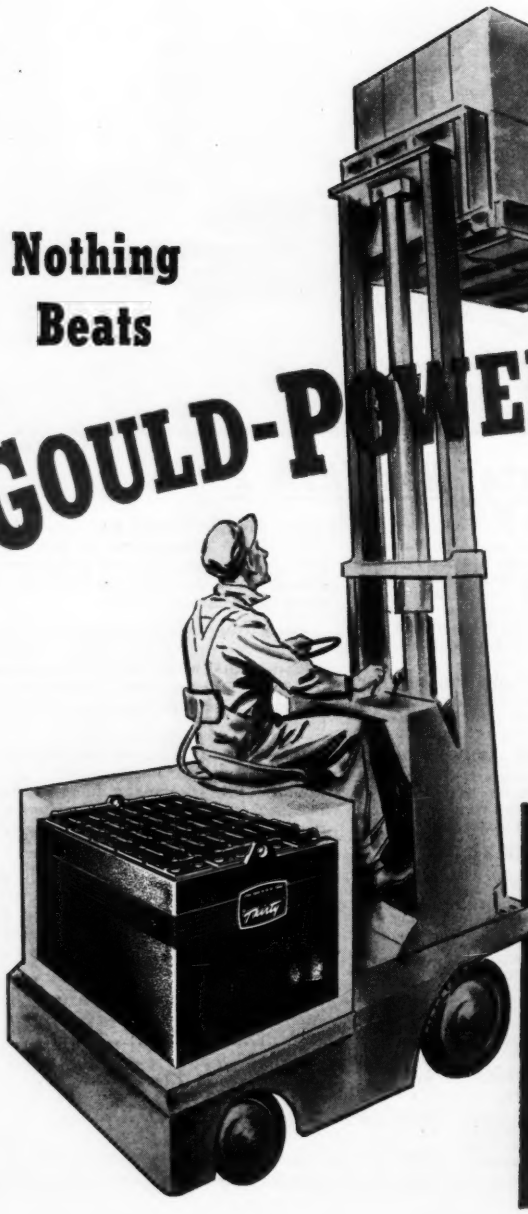
GOULD "THIRTY" BATTERY
with new "Z" Plates is
"America's Finest Industrial Truck Battery"

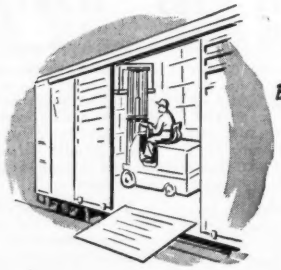
Position loads faster. Lift and maneuver at same time. Stable on highest lifts.



Battery trucks do more work. Always ready to go. No unpredictable down-time. Foolproof speed controls.

Nothing Beats GOULD-POWERED TRUCKS!





Battery trucks are smooth, easy to handle, cut driver fatigue. Quiet, odorless, safe.

GOULD
STORAGE BATTERY CORPORATION
TRENTON 7, NEW JERSEY
Always Use Gould Automobile and Truck Batteries

Flow

FLOW is not the official publication of any group, society or other special interest and consequently its editorial pages are unbiased and undominated.

VOL. 5, NO. 10 • JULY, 1950

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IRVING B. HEXTER, Pres.
LESTER P. AURBACH, V. Pres.

All communications should be addressed to FLOW Magazine, 1240 Ontario Street, Cleveland 13, Ohio.

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MANFRED SCHUELER
EDITOR

HENRY F. EATON
Associate Editor

•

FLOW EDITORIAL AND BUSINESS OFFICES—

CLEVELAND OFFICE
HAROLD F. BEHM,
1240 Ontario Street
Cleveland 13, Ohio
Phone: Tower 1-0264

NEW YORK OFFICE—
LEE HAAS
60 E. 42nd St.
New York 17, New York
Murray Hill 7-3420

CHICAGO OFFICE
ROBERT E. McKENNA
Room 734
520 N. Michigan Av.
Chicago 11, Illinois
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LOS ANGELES OFFICE—
FRED FRISENFELDT
Industrial Publishing Co.
Room 403
1250 Wilshire Blvd.
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"Acceptance under section 34.64, P. L. and R. authorized at Milwaukee, Wisconsin."

Announcing
STEEL SHOP BOXES by UNION METAL

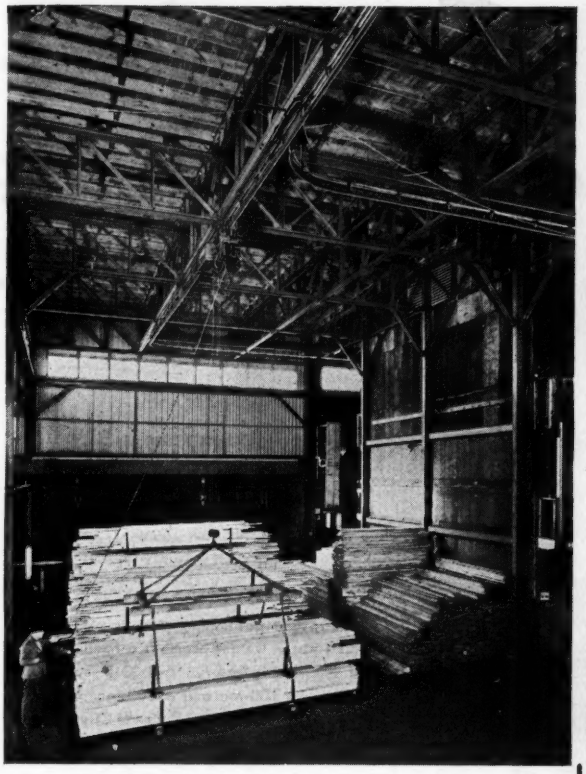
YOU'LL want to check into these rugged steel shop boxes —newly developed by Union Metal for high materials handling efficiency and extra durability. They are now available in a wide range of sizes, types and combinations.

Important! You'll find built into these small boxes the kind of plus-value features that make Union Metal's larger boxes, skids and pallets preferred equipment in plants everywhere.

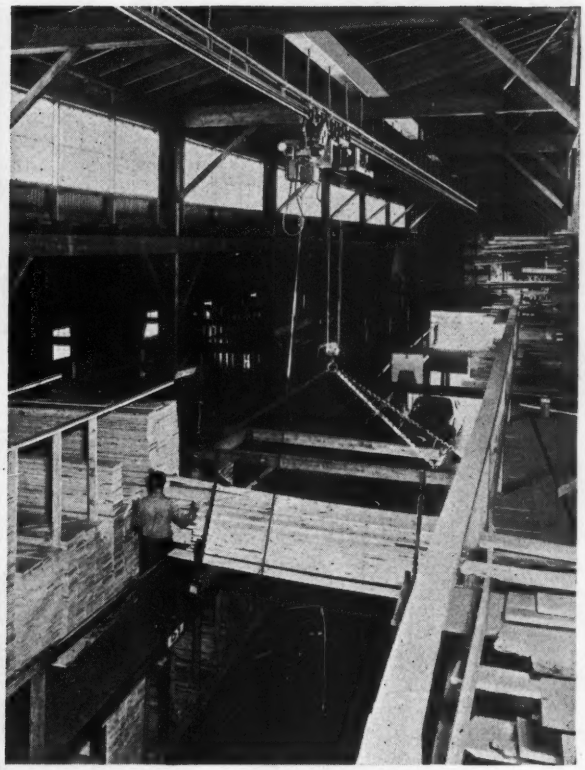
Folder MH-807 is yours for the asking. It describes standard boxes available for stock shipment, as well as special built-to-order types for unusual requirements. It tells also about the distinctive design and construction features that are sure to save you time and money. Write The Union Metal Manufacturing Company, Canton 5, Ohio.

Ask for Folder MH-807 on Union Metal steel shop boxes.

UNION METAL
Materials Handling Equipment



Unloading pallets of random length lumber.



Pallets transferred to 3-level storage.

Lumber Storage Labor Cost

CUT IN HALF

Due to three storage levels in this lumber warehouse, normal requirements would necessitate 4 men. With the American MonoRail System only 2 men are required to handle pallets from unloading dock to storage . . . labor cost on this operation is cut in half. This is just another of the hundreds upon hundreds of cases where American MonoRail Overhead Handling Systems cut cost of materials handling. Your American Monorail engineer can show you how it will effect savings in your plant.

SEND FOR BULLETIN C-1, a 56-page book showing successful applications of American MonoRail Systems.

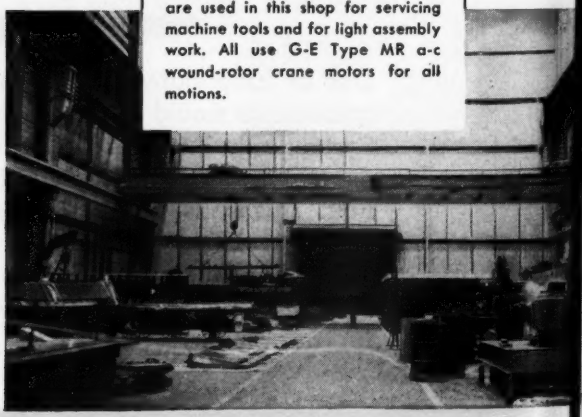
THE AMERICAN MONORAIL COMPANY

13129 ATHENS AVENUE CLEVELAND 7, OHIO

Spotting loads—150 tons or 50 lbs. a job for cranes...

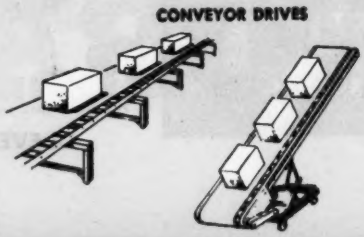
Moving and positioning gigantic pieces like this 150-ton welded frame is a familiar sight at this large factory. Two G-E equipped cranes—a 100-ton and a 200-ton—go into action as the crane follower signals to raise the load.

Worker easily controls this general purpose, pendant push-button operated, machine-shop crane. Several are used in this shop for servicing machine tools and for light assembly work. All use G-E Type MR a-c wound-rotor crane motors for all motions.



Everything electrical for MATERIALS HANDLING

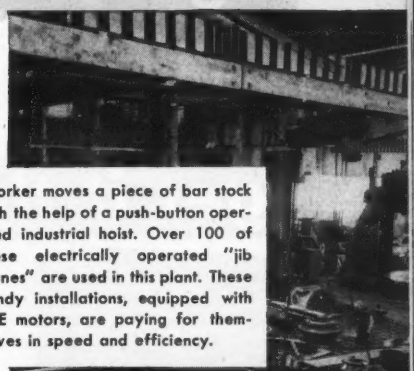
CONVEYOR DRIVES



CRANE DRIVES

POWERED by G.E.

G-E crane-drive equipment gives safe, positive control for all operations from accurate spotting to high-speed lowering. By specifying General Electric equipment you gain the benefits of 40 years' experience in crane electrification. G-E engineers work closely with crane manufacturers in all stages from design to production engineering. See your local classified 'phone directory for a listing of the nearest G-E office. *Apparatus Department, General Electric Company, Schenectady 5, N. Y.*

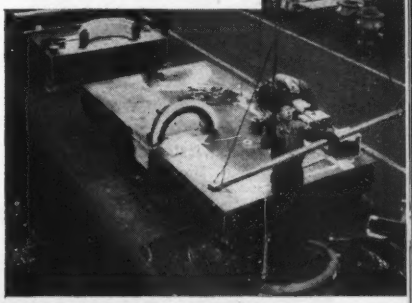


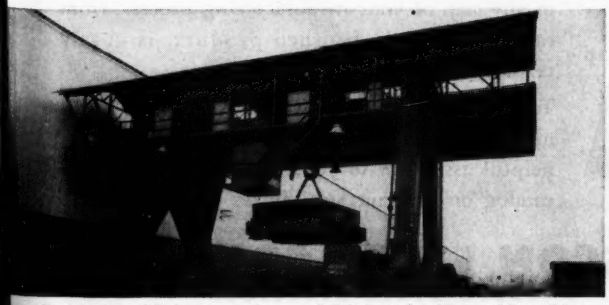
Worker moves a piece of bar stock with the help of a push-button operated industrial hoist. Over 100 of these electrically operated "jib cranes" are used in this plant. These handy installations, equipped with G-E motors, are paying for themselves in speed and efficiency.

SEE the latest techniques and equipment in this new film

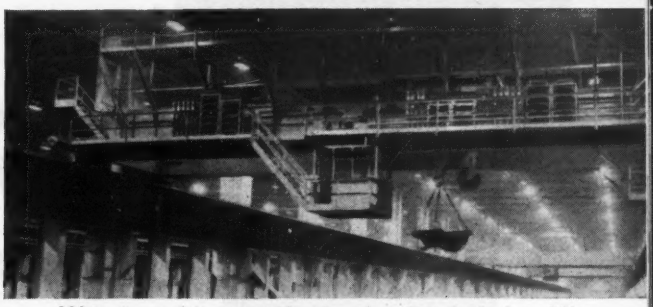
As a service to industry, General Electric has produced an unbiased, authoritative movie* covering in detail the latest techniques and equipment in materials handling. Your equipment supplier or G-E representative will make this film available to you and your staff—*without cost or obligation.*

**Part of G.E.'s MORE POWER TO AMERICA program; film is titled "Materials Handling—In Receiving, Warehousing and Shipping."*





Designed to lift large castings and fabricated sub-assemblies, this 100-ton outdoor gantry is driven by General Electric MD-600 crane motors. Known as the "toughest G-E crane motors ever built," they offer increased overload capacity and greater stability.

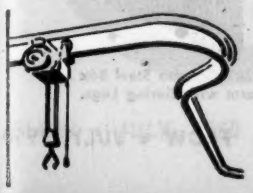


100-ton heavy-duty crane with main and auxiliary hooks shown lifting a small casting. The G-E magnetic hoist control on the bridge provides dynamic braking, automatic acceleration and deceleration and correct kick-off torque without cycling, overshooting, or downward drift.

GENERAL ELECTRIC

668-80

HOIST DRIVES

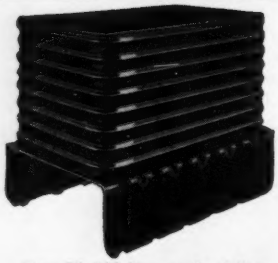


INDUSTRIAL TRUCK DRIVES & BATTERY CHARGERS

get it there FASTER

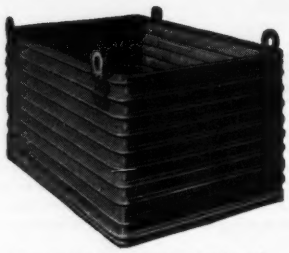
get it there BETTER

get it there CHEAPER



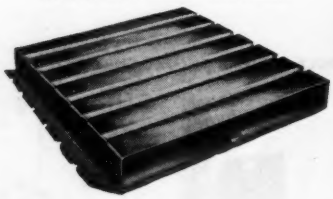
Type PB-120 Truscon Steel Box and Platform.

Type P-1. Truscon One Piece Steel Skid Platform.



Type B-80C Truscon Box Equipped for Crane Handling.

Truscon Double Face Steel Pallet.



with TRUSCON STEEL BOXES and SKIDS

Get your materials-handling job out of the foot-power, hand-basket, money-wasting stage!

The jumbled, helter-skelter handling and storage of materials, parts and finished products has no place in today's efficiency plan for profits. The slow piece-by-piece handling and moving of materials in any step of your manufacturing process, from raw materials to finished product, is costly throughout the day.

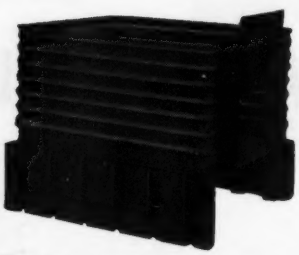
Truscon has field men who have helped solve many materials handling problems, and can be of helpful assistance to you. Write for descriptive catalog on Truscon Steel Boxes and Steel Skids.

TRUSCON STEEL COMPANY

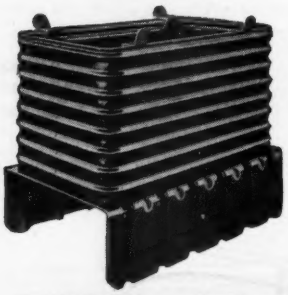
PRESSED STEEL DIVISION

6202 TRUSCON AVENUE • CLEVELAND 4, OHIO

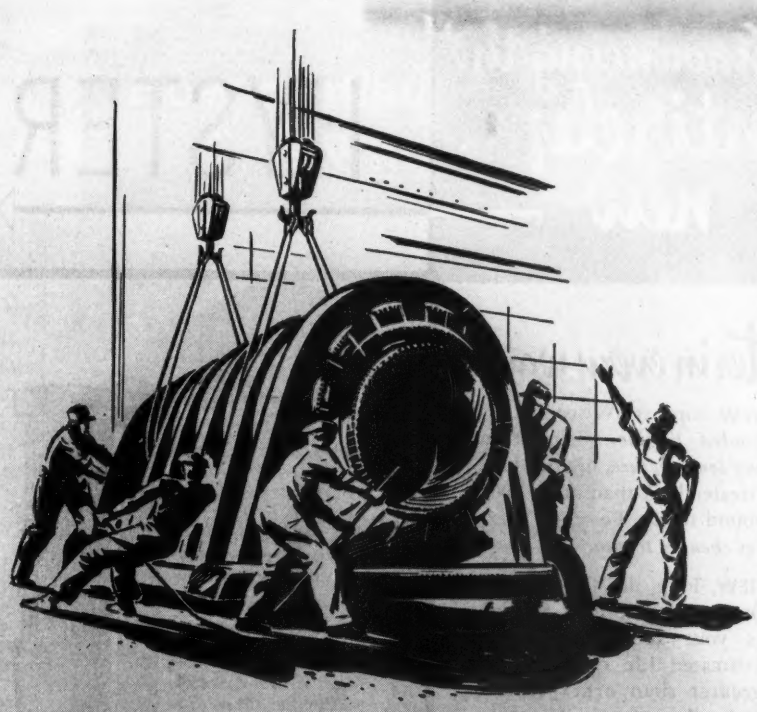
Subsidiary of Republic Steel Corporation



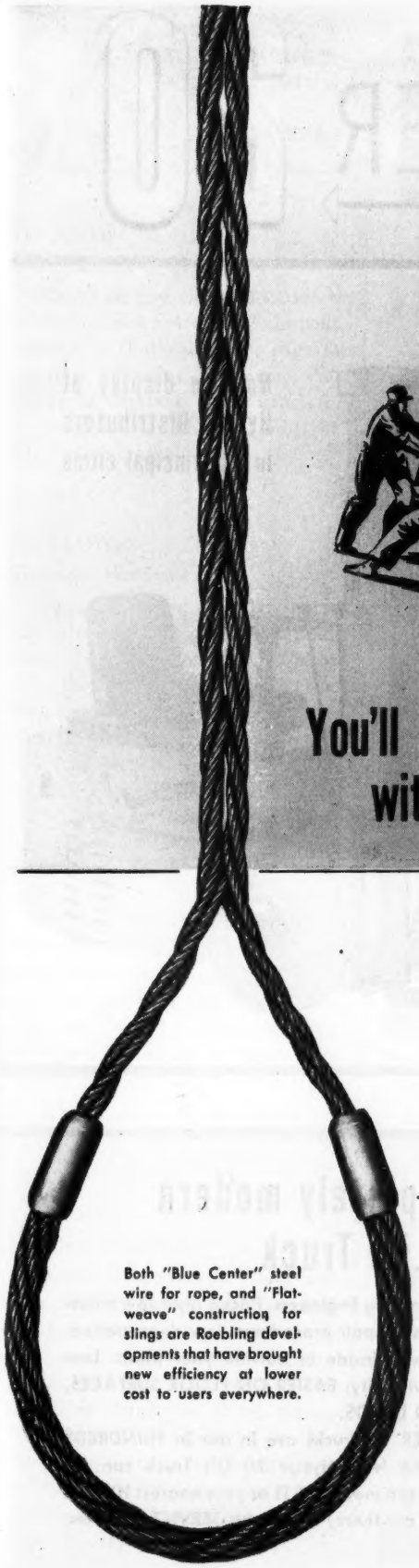
Type PB-650 Truscon Box and Platform with sliding End Door.



Type PB-120T. Truscon Steel Box and Platform with Tiering Lugs.



You'll lift loads faster—cheaper—with Roebling "Flatweave" Slings



Both "Blue Center" steel wire for rope, and "Flatweave" construction for slings are Roebling developments that have brought new efficiency at lower cost to users everywhere.

YOU'LL SAVE TIME and you'll save money with Roebling "Flatweave" Slings. In the first place, they last longer. Six individual wire ropes—of Roebling's famous "Blue Center" steel wire—are woven together side by side in "Flatweave" Slings. This forms a broad, flat bearing surface which distributes the load pressure and prolongs the life of the sling.

In the next place, "Flatweave" Slings are easier and faster to handle. They are very flexible and kink resistant. You can pass them through and under loads of minimum clearance. And besides that, they are free of unnecessary fittings. Heavy thimbles and servings are not needed with the specially-reinforced loops of "Flatweave" Slings.

Write today for a copy of the "Roebling Sling Data Book". It's free . . . gives timely information about slings and sling accessories. For lifting loads with top speed, safety and economy . . .

Today it's Roebling!

JOHN A. ROEBLING'S SONS COMPANY, TRENTON 2, N. J.

ROEBLING *A CENTURY OF CONFIDENCE*

Atlanta, 934 Avon Ave. ★ *Boston,* 51 Sleeper St. ★ *Chicago,* 5525 W. Roosevelt Road ★ *Cincinnati,* 3253 Fredonia Ave. ★ *Cleveland,* 701 St. Clair Ave., N. E. ★ *Denver,* 4801 Jackson St. ★ *Houston,* 6216 Navigation Blvd. *Los Angeles,* 216 S. Alameda St. ★ *New York,* 19 Rector St. ★ *Philadelphia,* 12 S. Twelfth St. ★ *Portland,* 1932 N. W. 14th Ave. ★ *San Francisco,* 1740 Seventeenth St. ★ *Seattle,* 900 First Ave. S.

Announcing the entirely new HYSTER 20

better in every way...

- **NEW** improved Wisconsin *Air Cooled Engine.* Efficient in *any temperature,* high or low. Greater H.P. than other 2000 pound trucks. Power to spare yet *cheaper to run.*
- **NEW,** long life, heavy duty Borg & Beck *Clutch.* Smooth as your automobile clutch. Estimated life over 2 times greater than other trucks. *It can be replaced in less than two hours.*
- **PNEUMATIC TIRES** — Big diameter, 10-ply rating (6.00x9).
- **SINGLE LEVER CONTROL** — one lever for hoisting, tilting.
- **LOW OVERALL HEIGHT** — truck with 9-foot lift only 78½ inches high. Other lift heights available.
- **EXTREMELY LOW OPERATING COSTS.** Almost 100 *new* mechanical improvements.

...Now on display at Hyster Distributors in all principal cities

HYSTER®
COMPANY
THREE FACTORIES
2931 N. E. Clackamas, Portland 8, Ore.
1831 North Adams... Peoria 1, Illinois
1031 Meyers Street... Danville, Illinois

the first completely modern 2000 pound Lift Truck

Designed by Materials Handling Engineers. Priced right, low maintenance costs, standardized repair procedures, low depreciation.

Operates equally as well inside or outside your plant. Low center of gravity, better visibility; EASIER ON FLOOR SURFACES, THE OPERATOR, AND ON LOADS.

THOUSANDS of HYSTER 20 trucks are in use in HUNDREDS of INDUSTRIES. NOW the New Hyster 20 Lift Truck can cut materials handling costs even more. SEE IT at your nearest HYSTER DISTRIBUTOR. While you are there, inspect his SERVICE facilities.

To FLOW:

Finds Leads

Please give us name and address of firms making stock rack for coils, similar to that shown on page 69 of your February 1950 issue. We desire to contact these firms for representation.—H. T. Lambright, H. T. Lambright Co.

To FLOW:

Reprints For Sales Office

One of our field men has noted the article "How Caterpillar Standardized on Containers", written by Mr. W. A. Naumann, Production Engineer, and appearing in the May issue. He has asked whether it would be possible to obtain permission for reprints of this article to be made up, or whether they could be obtained from you for distribution to our western clientele through that field office.

Will you be good enough to advise the writer how we may go about this and the cost of such so that we in turn can notify the interested field office.—A. G. Knowles, Manager of Sales, The Powell Pressed Steel Co.

Permission granted. Flow also furnishes over 150,000 reprints a year for interested users.

To FLOW:

For Bulk Materials

We are interested in equipment for unloading bulk silica from boxcars and conveying it to bins on the third and fourth floors of our processing building. Will you kindly refer this inquiry to those manufacturers who are specialists in this type of equipment or who are specialists in the design of such systems.—H. H. Crafton, Vice President, H. H. Robertson Co.

How continuously it works is what counts

ILLUSTRATED HERE is a handling operation which is typical of the work some trucks perform throughout every shift ... 24 hours a day! Under such circumstances every delay for servicing or repairs means lost time, lost income.

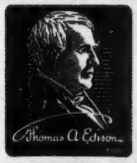
★

The logical truck for such work is an electric truck. Its motor drive stays on the job because it has few wearing parts . . . *only one basic moving part.*

★

The logical battery to power the truck is an EDISON Nickel-Iron-Alkaline Storage Battery. With steel cell construction inside and out, an electrolyte that is a preservative of steel, and a foolproof electrochemical principle of action, EDISON batteries are the longest-lived, most durable and most trouble-free of all.

EDISON batteries give you many advantages: they're mechanically durable; electrically foolproof; quickly and easily charged; simple to maintain; not injured by standing idle. Get a current EDISON price quotation—you will probably find initial cost MUCH LOWER than you think. Couple this factor with well-known EDISON long life and you will have the key to year-after-year economy.



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STORAGE BATTERIES

EDISON STORAGE BATTERY DIVISION

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GIVING COSTS THE *economy treatment...*

The economy treatment—that's what handling costs are getting in more and more plants. It's high time, too, because it is estimated that unskilled workers still devote 80% of their time to moving materials. And when you also consider that at least 30c out of every production dollar is paid out to lift, transport and stack goods, you have plenty of reasons why the cost of material handling needs a good going over.

Thousands of large and small plants are already putting a big dent in handling costs by using Yale Hoists, Trucks and Scales. You can have the same economy now. Let us give you the benefit of our long and varied experience in solving material handling problems. Our recommended "economy treatment" will lead you to efficiency, speed, safety and lower costs. Phone or write today.

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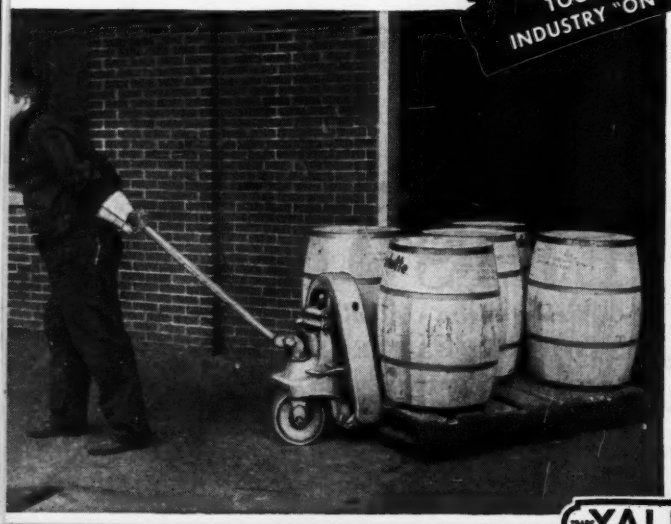

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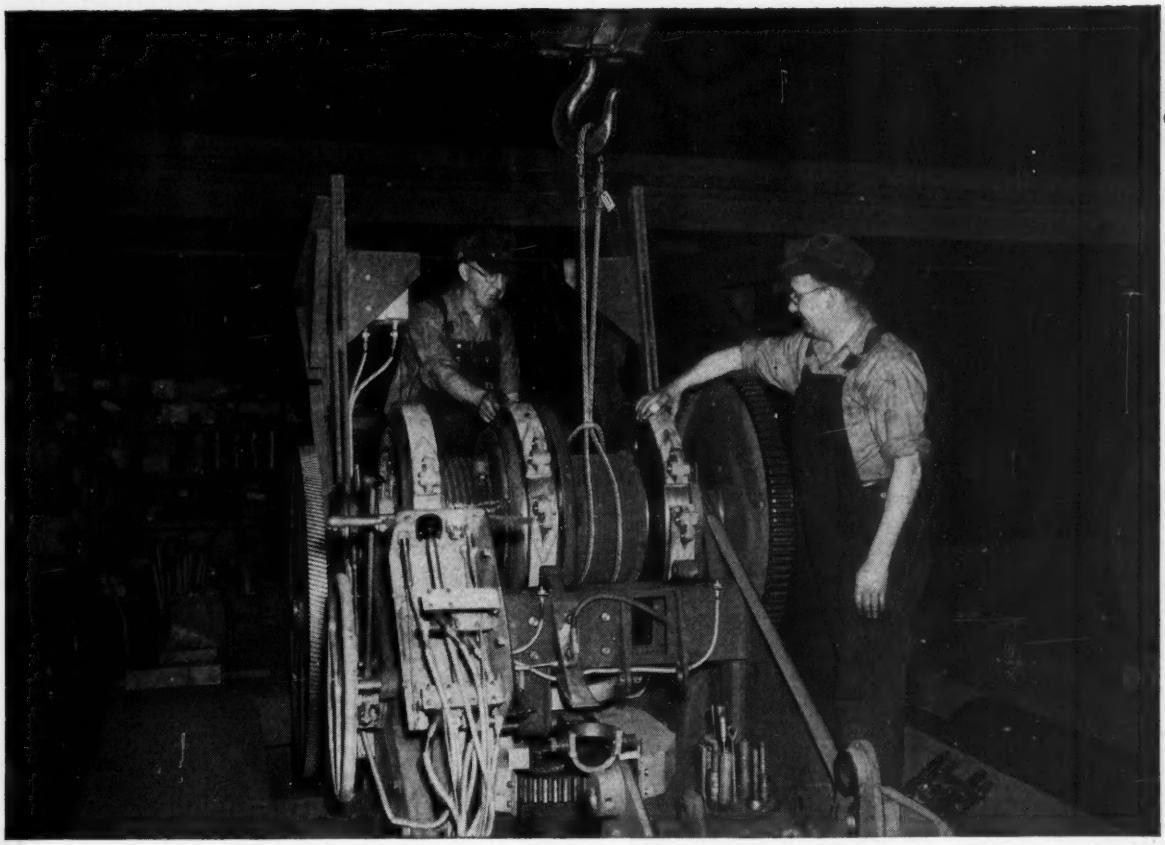

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with flexibility comparable to fiber rope

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Maybe you don't *have* to depart from established custom to enjoy the advantages of ACCO Wire Rope Slings.

The picture above illustrates a case in point. The hitch is a typical fiber rope hitch. But the sling is not fiber rope. It is a Double ACCO-LOC Cable Laid Grommet. It has all the safety, dependability and uniformity of an all-steel, machine laid sling with flexibility comparable to fiber rope. The patented splice develops the full strength of the sling body—plus giving an armored section to use at point of greatest wear.

Like all ACCO Registered Wire Rope Slings, these grommets are rated as to capacity—proof-tested to twice the rated capacity.

Here's a possible way to reduce material handling costs, a certain way to have new safety, reliability and ease of accurate sling inspection. Write today for complete and detailed information about Double ACCO-LOC Cable Laid Grommets.

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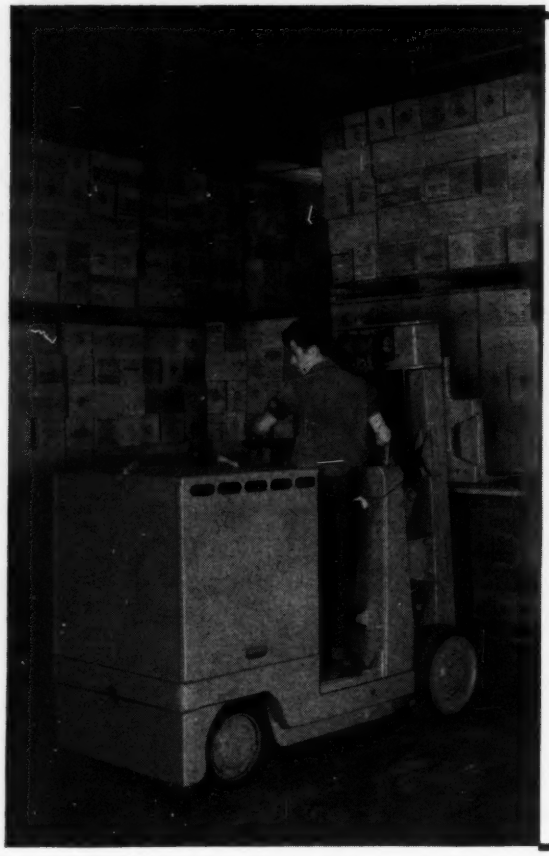
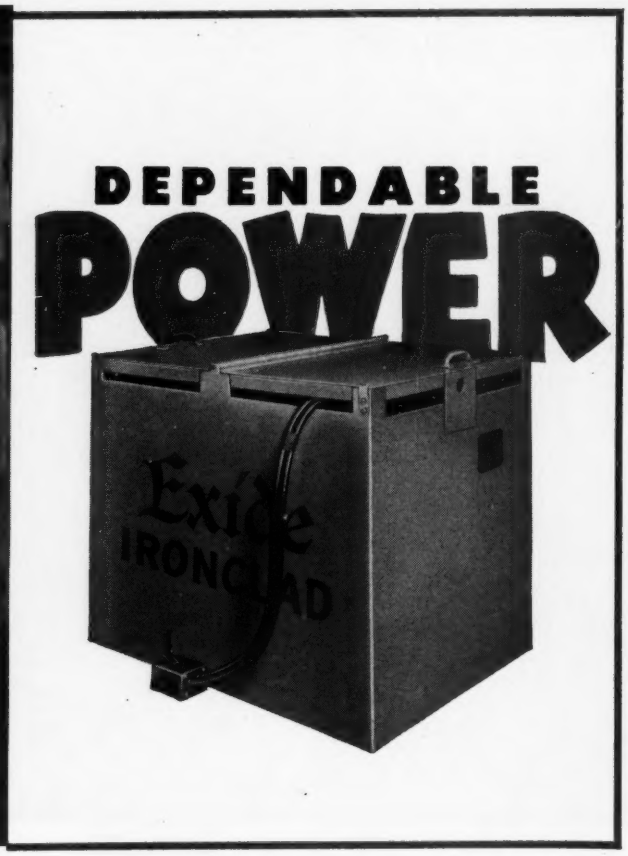
WIRE ROPE SLING DEPARTMENT

In Business for Your Safety

ACCO Registered WIRE ROPE SLINGS





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Exide powered electric industrial trucks assure the lowest costs for truck operation . . . costs for recharging run as low as 2 cents per KWH of battery capacity . . . seldom more than 15 cents per shift to maintain. You gain in many other money-saving ways when your trucks are powered by Exide-Ironclad Batteries. You get:

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- full-shift availability, with trucks handling as much tonnage during last hour as first, and at practically no difference in speed.
- high truck availability—freedom from mechanical troubles, and with no unscheduled periods of down time.
- easy to keep charged—batteries absorb a very high percentage of charging current.
- exceptionally long life—proved on more than 100,000 heavy-duty jobs.
- inherent safety—quiet operation with less worker fatigue; no vibration to jar work in transit; no oil seepage on floors to create accident hazards.
- wide range of sizes for every make of battery-electric truck; compact construction permits standardization.

Combined, these and other Exide-Ironclad characteristics assure you dependable performance, day after day . . . for years.

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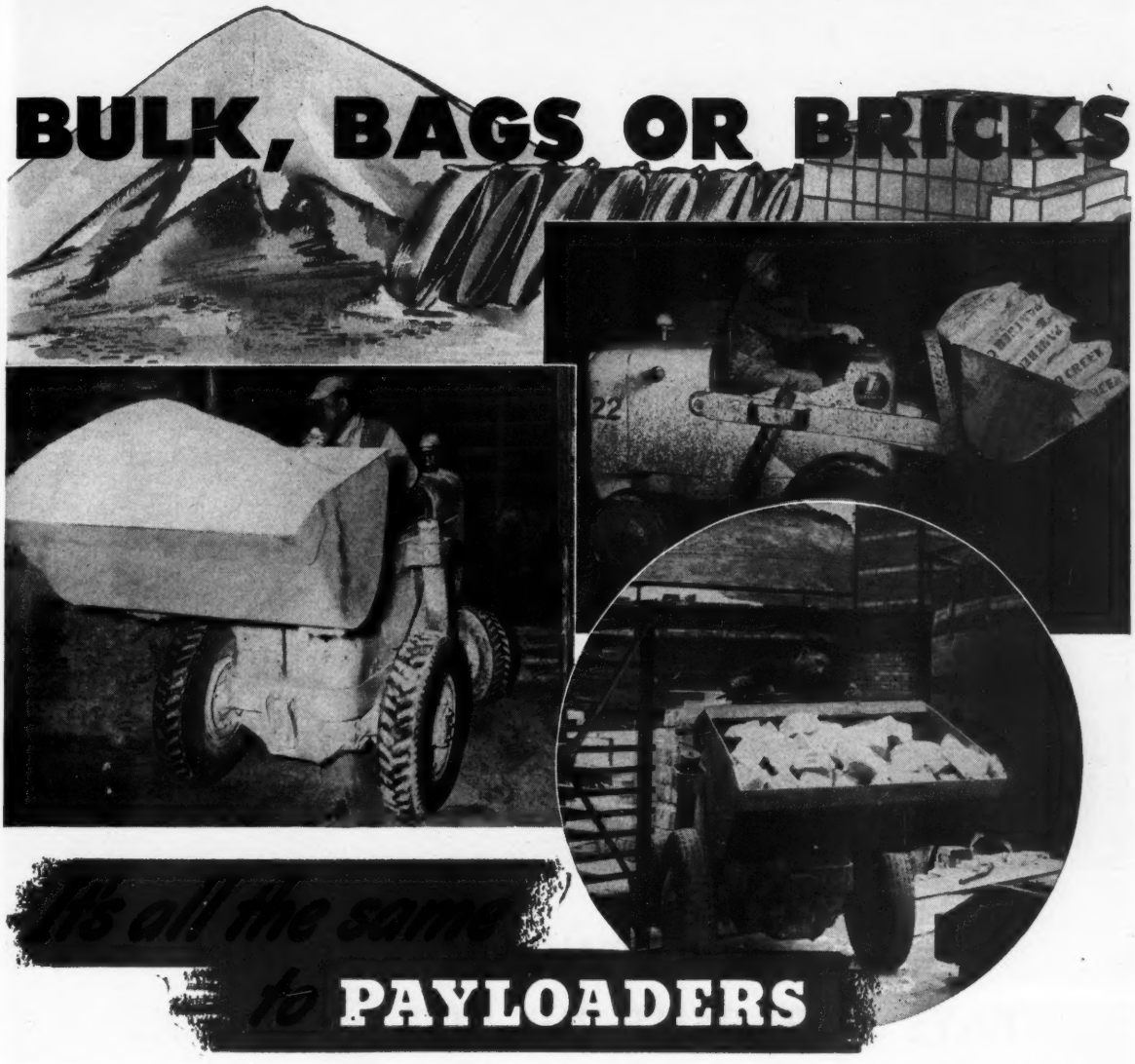

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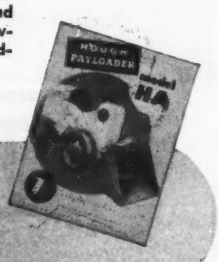
Catalogs **about "PAYLOADERS" include many varied application photos and job data. They're yours for the asking, covering the 12 cu. ft. Model HA, the ½ yd. Model HE, the ¾ yd. Model HF, the 1¼ yd. Model HL, or the big 1½ yd. Model HM.**



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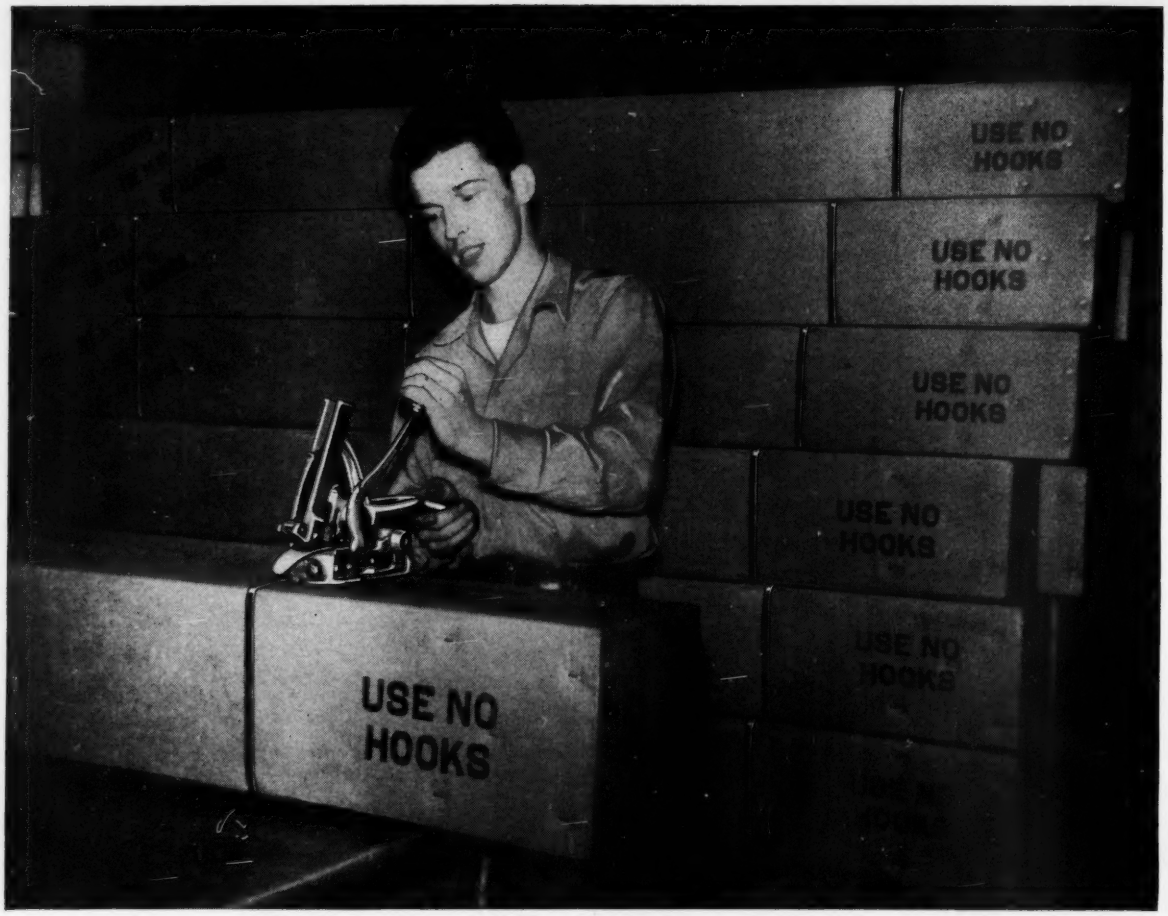

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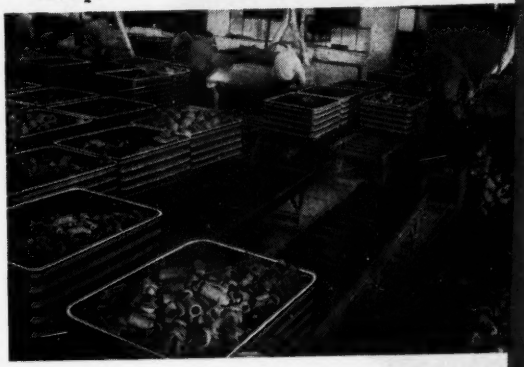

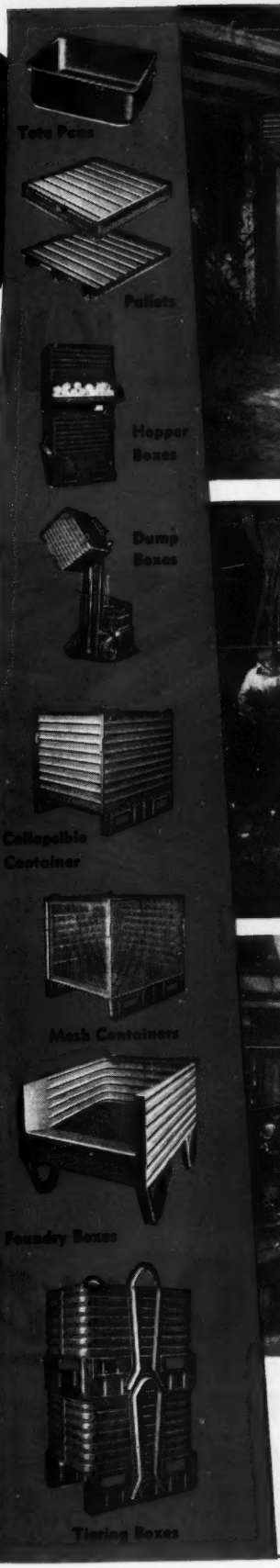

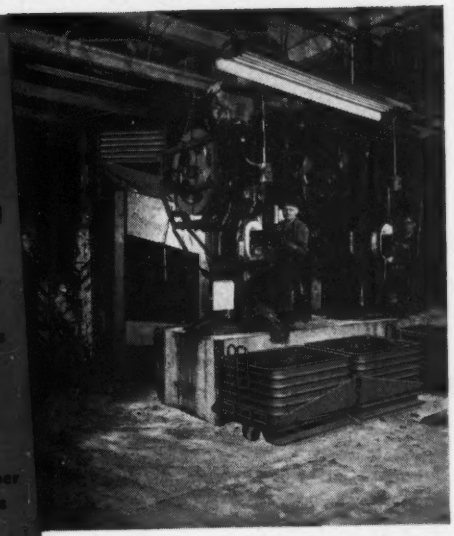

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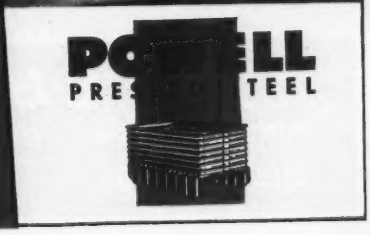

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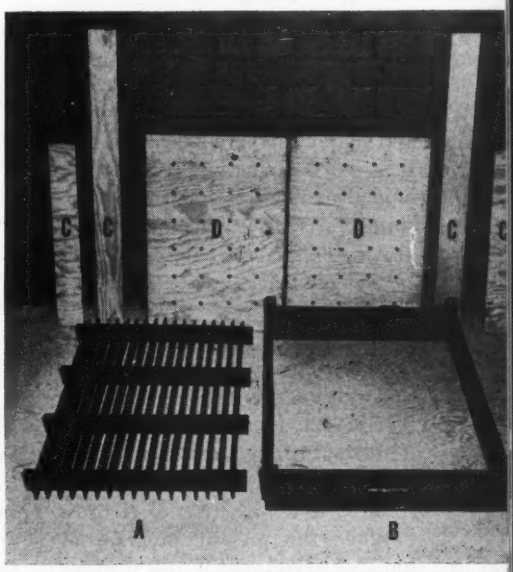
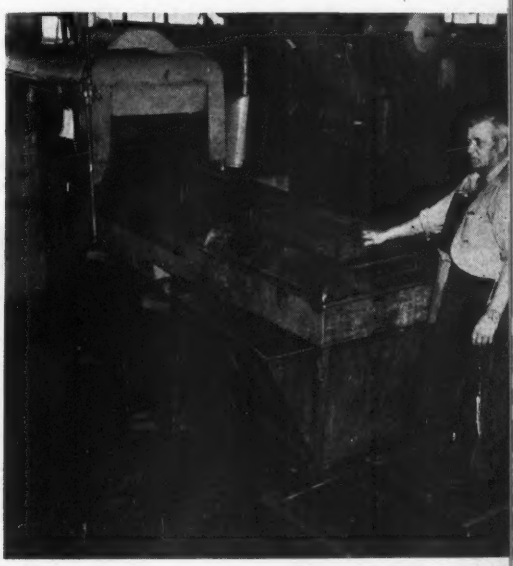
WASHABLE CONTAINERS FOR DELICATE PARTS

Is your problem one of handling costly, vulnerable parts? Here's how TAPCO uses five basic containers that are made up in 1800 different combinations by the use of fillers.

Wm. V. H. Moore,
Foreman of Material Handling,
TAPCO Plant of Thompson Products, Inc.,
Cleveland



CONTAINER COMPONENTS. (A) fillers, (B) frame, (C) wooden liners, and (D) perforated bottoms.



TRAYS ARE PLACED inverted on malleable iron bars which make up the carrying surface of the washing machine conveyor.

THE Tapco Plant of Thompson Products, Inc., Cleveland, uses an engineered container system which is designed for the protection of highly vulnerable and expensive parts for jet and other aircraft engines. These high-alloy parts are handled in specially designed metal trays through processing and assembly. Because of the extremely critical nature of the components, they must be kept separate from each other within the containers in all moves, and the containers must be thoroughly washed after each use.

The reason is, of course, that any particles of dirt or abrasive material must be prevented from adhering to the containers, which would scratch or mar the critical engine parts. Regrinding or polishing would result in incorrect tolerances, which means product loss. And "product loss" would be very costly since some of the items, little more than an inch wide and four or five ins. long, cost up to $15 and more apiece when finished.

Flexibility of Standard Containers

While thousands of different types of components are handled through the TAPCO plant (a division of The Thompson Products Co.), only five sizes of containers are used. The adaptations are made primarily by means of inserts which can be set on various centers.

(Turn to page 42)

STRAPPED PACKS INCREASE CA

WILLYS-OVERLAND Motors, Inc., Toledo, is engaged in a cooperative program with its vendors to ship components in engineered load units. Such "packaged" loads reduce transportation charges and simplify handling for both parties. With millions of lb. received annually, and parts arriving from suppliers as far as 1000 miles away, any method to effect a greater utilization of truck capacity means large savings.

Formerly, loads were rarely stacked to maximum height and to full width of the delivery vehicles. At the time, numerous handlings of individual components contributed to an undesirable damage rate. This resulted in a high rate of returns.

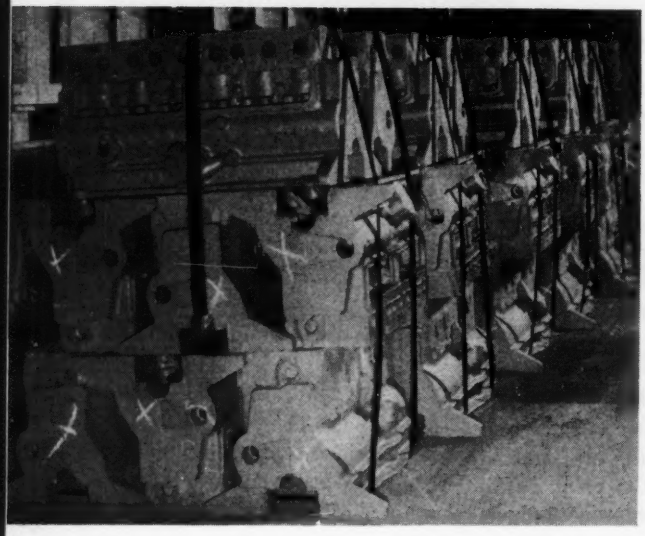
While the present program of unitized shipments is too new for precise figures, one estimate places the savings in handling and transportation costs at from 20 to 90 percent. The damage rate is now negligible. One major operating benefit has been the utilization of the cube for storage, increasing capacity as much as 66 per cent. The resultant good will between vendors and Willys-Overland has been of great importance. Vendors have been eager to cooperate since the savings accrued to them as well.

The data for this article were furnished by
M. M. KING
Supt. Material Handling
Willys Overland Motors, Inc., Toledo

Steps in planning and instituting the program were: 1. Selecting those items which would best lend themselves to unitizing and which would result in the greatest savings. 2. Studying various methods for combining materials into load units. 3. Planning their design to fit "two abreast" and the full height of the average highway vehicles which served the plant (a similar standard was adopted for rail cars). 4. Extensive road tests to prove the feasibility of the methods employed. 5. Additional in-plant tests to examine lifting, handling and stacking characteristics of the loads. 6. Modifying the carrying members of several fork trucks to suit certain characteristics of the new load units—tines were reduced one in. in width.

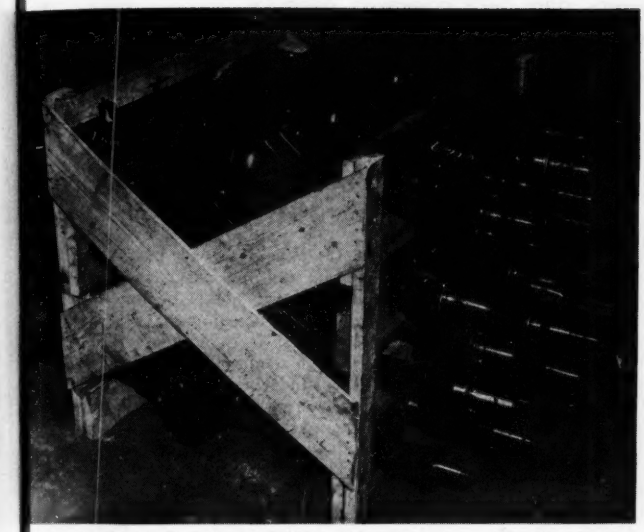
The exhibits on these pages show a representative selection of the more than 50 new packs which have been and are being engineered by the company. Note the use of steel strapping; also the utilization of natural openings and the contour of certain parts for engagement by the fork trucks. The simplicity of load carriers will likewise be of interest to material handling engineers.

MOTOR BLOCKS. Load units of eight are 35" x 26" x 37", weigh 1473 lb. Bottom and middle rows are staggered, top row is placed at right angles. Shorter band takes the weight off bottom row. Natural openings in units accommodate modified tines of the fork trucks.

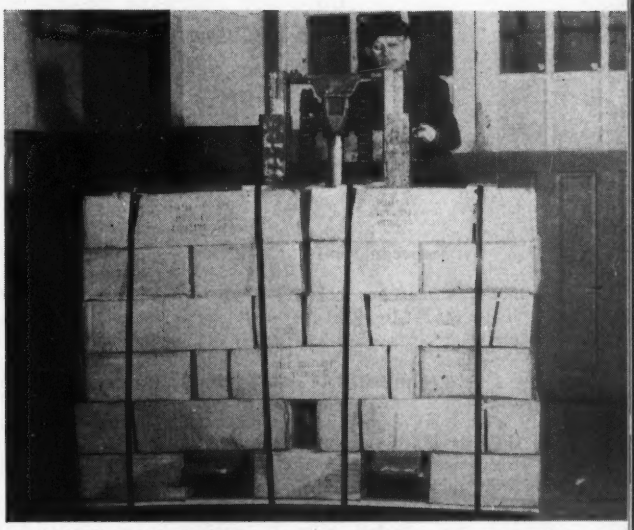


TRANSMISSIONS. Load units of 30 are 40" x 42" x 50", weigh 2535 lb. Each layer is separated by a wooden spacing rack. Parts rest between spacer blocks. Runners are designed for fork truck entry. Extensions of the transmissions are secured by dove-tailing adjoining racks.

CAPACITY, REDUCE COSTS

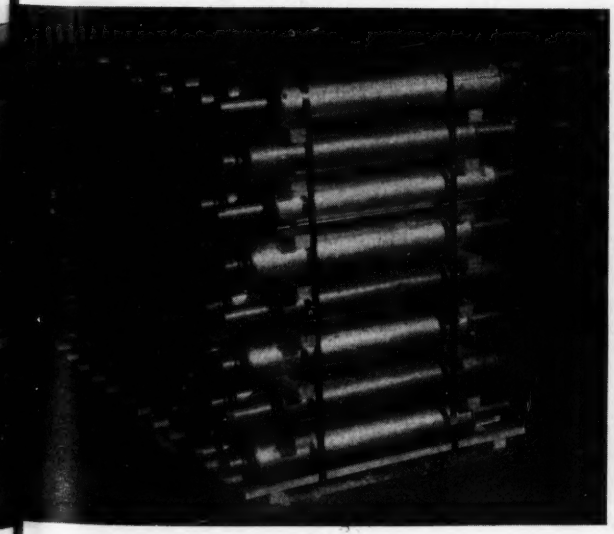


REAR AXLES. Load units of 20 are 40" x 48" x 46", weigh 3700 lb. The forks engage the load at either end, lift against housings. For loading, one end and bottom pieces are assembled. As a layer is added, spacers are nailed. Loads are stacked to weight limits.



CARTONED CHROME PARTS. Load units of 32 are 26" x 64" x 42", weigh 1900 lb. Three runners of one carton each are placed on two wood 1" x 4" supports. Other cartons are cross hatched. Four wooden retaining strips are on top of load. Four ¾" bands are used.

MUFFLERS (below). Load units of 96 are 42" x 58" x 42", weigh 606 lb. Layers of 12 are separated by ⅜" x 1" slats. Retainers at the ends of the slats prevent shifting. The load is held by two ¾" bands and is handled by a fork truck from either end.



BAGGED LEATHERETTE (below). Load units of 27 are 42" x 42" x 35", weigh 3513 lb. Load is criss-crossed over three rolls which act as runners. Latter are banded like a figure eight to roll above. Interlocking strapping of rest of load prevents shifting.

The Useful, Versatile Load Conveyor . . .

Stitched Canvas Belting

Part 2 of Three Parts—Factors Relating to Heating and Cooling

Data for conveyor design engineers and belt conveyor users. This discussion covers factors relating to construction, physical properties and application of stitched canvas belting.

Impregnations

AFTER a belt has been assembled it is ready to start through its various treatments.

Untreated

In some cases it may be desirable to use the belt in its untreated condition, in which case it is put through a very carefully worked out stretching process and applied in that form. It is recommended that **treated belts be used wherever possible as they add materially to the service life and strength of a belt.** This applies to both stitched canvas and solid woven types.

Impregnating compounds are of various kinds, depending on the service required of the belt:

Class 1—Oil Impregnated

Class 1 belts are saturated in an oil compound, the basis of which is linseed oil combined with other oxidizing mineral and semi-drying oils. In good standard practice the squeezing rolls are located on each side of the impregnating tank and the belt is worked back and forth, in and out of the tank, alternately squeezing and saturating the belt until a complete impregnation is obtained. After this point is reached, the belt is run through a final set of squeeze rolls which leave just the proper amount of oil compound in the belt. This is carefully checked by weight before and after impregnation.

The belts are then put in a hot room and left at elevated temperatures for several days after which they are coated as required and finally placed on huge horizontal stretching frames and cured. During this time the oil in the compound dries or partially oxidizes to a gum. The gum formed has less strength and elasticity than rubber but is practically unaffected by light, heat and age and is completely impervious to exposure to other oils. To a certain extent it acts like the oxidized linseed oil that forms the basis of floor linoleum and when properly applied and cured it gives a belt much greater resistance to abrasion than the raw cotton possesses. Belts saturated with improperly balanced oil compounds or with semi-drying oils and other substitutes may be made more flexible but they do not resist wear so well and are most likely to stretch in service. It is extremely important that the oil compound penetrate all the fibres of cotton in the belt and that after the excess has been squeezed out a definite quantity remain in the fibres. This remaining compound waterproofs the fibres and reduces the wear due to internal friction and, when properly cured, makes the threads of warp and filler tougher and more resistant to abrasion.

Belts treated with a thin oil compound are easily impregnated but must be squeezed drier in order to keep the belt from "weeping" during use and, of course, do not give the service life of a belt treated with a properly balanced oil compound that is inherently more difficult to apply.

The ideal oil compound approximates a perfect balance between flexibility, abrasion resistance, maximum service life, and absolute assurance against "weeping".

Class 1 oil belts are recommended for use where oil in any quantity is present in the material being carried. They are not suitable for working in the wet or under great heat, nor where they are subject to acid or alkali dust or fumes.

Class 2—Bituminous Impregnated

What are known as bituminous compounds are a mixture of asphalt or gilsonite with various oils and gums. It is not uncommon for belts with this treatment to have a service life well over 25 years. Gilsonite of a special, highly selected type is heated beyond its melting point and mixed with various oils and gums. It is then transferred and held at high temperature in a huge tank that is sufficiently deep to allow the belts to be saturated in this high temperature mixture. Again, the compound is purposely kept at a very thick consistency. Complete impregnation must be obtained and best practice calls for soaking the belt in a **relaxed** condition (not under tension since the twist of the warp and stitching tends to retard impregnation when under tension, and necessitates the use of a thinner or less viscous mixture).

After this special soaking process the belt is put through a scraping device maintained at high temperature with high-pressure steam, so that the surfaces and **edges** are scraped clean and dry but the full quantity of impregnation remains inside the belt. Some manufacturers pass the belt through rollers equipped with special scrapers. This internal compound will never exude in service regardless of the strain on the belt or the temperature at which the belt is operated. The Bureau of Standards test of this treatment is to carry it at 170 degrees F. for 14 days, after which the surface of the belt must be absolutely free from any excess treatment or stickiness.

From the high temperature scraping device the belt is immediately pulled up on the stretching frames while it is still very hot and is allowed to cure and air dry with all surfaces and edges exposed to the curing atmosphere for up to 11 days.

This type of treatment makes a belt that withstands water, heat and chemical action. The treatment provides one of the finest preservatives against all types of aging, mildew or rot and the belt can be counted on to retain its full strength and flexibility indefinitely.

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TURN TO
MAN-MINUTES

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Belts with this treatment have been in storage and in use for periods of over 30 years. When cut open their interior was found to be still moist, with no drying out or sign of brittleness.

This type of treatment should not be used in the presence of oil, kerosene, gasoline or any solvents of an aromatic hydrocarbon nature. It can withstand heat to the extent of carrying loads up to 300 degrees F.

Class 3—Wax Impregnated

Tasteless, odorless, and practically colorless waterproofing compounds are put into belts that are used in canneries, where maximum cleanliness is required, for general slider-bed and package conveying and many other general uses. They contain a highly developed combination of waxes, including high temperature waxes. These waxes, which are normally quite brittle, are modified by other wax to increase flexibility and to obtain other desirable physical conditions.

The wax is carried at a very high temperature, causing it to be thin and highly fluid. The belt is saturated in this bath (preferably in a relaxed condition). After saturation the belt is run through steam heated rolls carried at the same high temperature as the bath. These rolls are carefully adjusted to squeeze out the excess impregnation and retain the exact desired quantity. Best practice calls for the belt, while still very hot, to be immediately pulled up on curing frames and put under tension. The fluid wax fills all the interstices between the cotton fibres while the belt is under extreme tension. This also straightens the belt to plumb line straightness; and as the wax freezes it leaves a belt of the most stable type.

Although extremely flexible, this belt is practically unaffected by atmospheric changes and produces a minimum of stretch under full working load.

While not as resistant to abrasion as Class 1 or Class 2 belts, it has an extremely low coefficient of friction and is the ideal belt for slider-bed applications since the wax is a continual lubrication which cannot wear off.

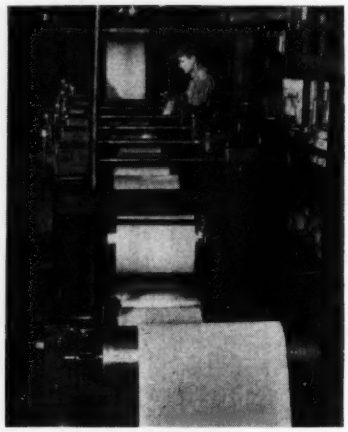
Wax belts become very smooth and glassy in extremely low temperatures, although they will retain their flexibility and will not crack even on freezing room duty. The coefficient of friction becomes so low that it is necessary to lag the drive pulleys. At the same time, however, this low coefficient of friction decreases the power requirements of a slider-bed which, of course, is highly desirable. Rubber lagging should never be used on low temperatures with wax belts. (A section on Pulley Lagging is included in Part III.)

Coatings

Untreated and many of the impregnated belts (Classes 1, 2 and 3) can be further custom tailored by adding any of the various standard coatings outlined below:

Abrasion Resistant

This is a coating made of a combination of drying oils and mineral pigments. It is applied by passing the belt through a special roller machine which assures a uniform and measured thickness of coating. One coat is normal practice but under extreme conditions the belt can be specified for two coats which, of course, increases its abrasive resistance. This compound fills up the stitching holes and gives the stitching twine and the outside plies of the belt an extremely tough, hard surface. It has low coefficient of friction which



AFTER THE BELT IS SEWED it is prestretched before being treated. This special machine applies controlled tension on every foot of the untreated belting, and coils it at the proper tension. This operation reduces the stretch in service to an absolute minimum.

makes it especially desirable for slider-bed application. After prolonged service this coating can be reapplied on the job if and when necessary. While normally furnished in a buff color, this same coating is available in red or black.

Cellulose Surface

This is an exceptionally thick, tough surface that is applied to the belt before it is impregnated. It is a tasteless, odorless, non-toxic colorless coating which in spite of its extreme toughness and hardness retains a great amount of flexibility.

It can be applied only to one side of a treated belt. The reason is it is applied to the dry cotton and the coating penetrates the interstices of the cotton fibre, thus obtaining an extremely high bond to the belt's surface. Impregnation takes place after the coating is applied. On untreated belts it can be applied to both surfaces. It is extremely resistant to abrasion and has a rather high coefficient of friction.

Heat Resistant

This is a renewable coating of a gilsonite base capable of withstanding high temperatures. It is somewhat thermoplastic and is especially good in conveying hot granulated or powdered material, such as sand, Fullers Earth, bone char, etc. It retains the very fine dust of the material carried, which forms a protecting and insulating screen over the belt and its treatment.

It is very easily applied on the job. In normal practice the user dresses the outside of his belt with this material periodically, ranging from once a week to once every several months, depending upon the service encountered.

Plastic

One of the newest developments is the plastic coating. This development will meet many of the problems upon which the conveyor designer in the past has had to compromise. Vinyl plastics are used in many coating applications.

This is an actual polyvinyl plastic, which has been compounded in liquid form and highly plasticized. While it has all the chemical properties of a true polyvinyl plastic, it still retains extreme flexibility.

It can be applied only to untreated belts although the belt can be ordered with an actual impregnation of the plastic as well as a coating on its surfaces and edges. This impregnation reduces the flexibility of the belt in proportion to the amount of impregnation deposited. The conveyor designer can obtain this in any degree he desires. This coating can be built up to any thickness required but is normally furnished at about 1/32″ thick.

The coating actually penetrates the outer layer of the canvas and, by filling the interstices of the cotton fibres, attains an extremely strong bond to the surface of the belt. It may eventually, through prolonged use, be worn very thin but it will never peel off as do some latex coatings. In the event it wears thin or is accidentally cut, it can be completely recoated or patched on the job. This is a very simple process, which makes it easy for the user to seal the ends of his belt and the holes made by the fasteners when it is installed. It can be applied on either one side or both sides.

The coating is regularly furnished in white, gray or black but can be supplied in any color of the designer's choice. In white, and most other colors, it is completely non-toxic, odorless, and tasteless. It is extremely chemically resistant to most acids and alkalis in either liquid or fume form. It should be particularly noted that this material will withstand any concentration of free fatty acids (oleic, louric, etc.) as well as any oil, which makes it particularly suitable for carrying copra (coconut meat).

The properties of this polyvinyl plastic coating also make it ideally suited for food conveying, cannery work, etc., since its beautiful white finish will never discolor through age and cannot be discolored by any chemical action. This imperviousness to chemical action allows the user to employ almost any

So—We Sold Them the Pilot Model of Our New FT (100% Functional) Fork Truck which Had Been in Their Plant on Test

Put yourself in our place. Our engineers had been instructed to design a new 3000 to 4000 lb. capacity electric fork truck—a completely functional *"work horse"*—retaining traditional Baker quality and ruggedness and adding features that contribute to greater utility, safety and convenience.

For months they worked like demons—analyzing basic materials, testing controls, motor characteristics, hydraulic equipment, studying every essential truck function, designing, re-designing, assembling, re-assembling.

Finally they said—"HERE IT IS!"

"Looks like a lot of truck," said our management, "but how much will it cost?"

"LESS THAN ANY TRUCK IN ITS CLASS!" was the answer.

"Will it do the job?"

"LOOK AT THESE TEST RECORDS!"

Our engineers had subjected this truck to exhaustive tests covering every conceivable truck function. It had come through with flying colors.

BUT WE WANTED TO BE SURE!

So we selected a plant which had just about the toughest operating conditions you'll find anywhere; and put one of the pilot models on test there

This plant is a high-production foundry. Abrasive dust, heavy, punishing loads, typical foundry floor conditions, continuous, round-the-clock, three-shift operation—the most strenuous service you'll ever ask of a truck.

Frankly, no industrial truck had ever been able to "stand the gaff" in this foundry.

BUT THE BAKER FT DID!

From the day it was installed, there was NOT ONE MINUTE OF DOWN TIME!

As a result, the company insisted on keeping *this truck:* the pilot model which was in their plant on test!

●

That's the story of the development of the new Baker FT 3000 to 4000 lb. capacity Electric Fork Truck. Production models are now rolling off the assembly line in our new modern plant. Write us, or ask your nearest Baker representative to give you details on the toughest, lowest-priced, fork truck in its class.

Baker FT Fork Truck delivering rough castings to tumbling machine at the Taylor & Boggis Foundry.

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Baker INDUSTRIAL TRUCKS

LOW-LIFT HY-LIFT FORK & RAM CRANE TRACTOR PLATFORM

the BELL Prime Mover

Bulky materials easily transported inside and outside the plant. Dozens of such jobs can be handled by the Prime-Mover.

Prime-Mover helps keep the plant clean. Bucket takes all kinds of scrap, large and small.

YOU CAN KEEP THINGS MOVING with the PRIME-MOVER!

Gear driven—no belts or chains

Engine protected against dirt

Turns in its own length, 63½"; width 31½"

Converts from bucket to platform without tools

Eight hours continuous running on 3 gal. of fuel

Bucket holds 10 cu. ft.

THIS versatile machine is doing a remarkable job in many plants. It can do the same for you. If some particular problem of material handling is bothering you—the Prime-Mover can answer that one and additionally help in a number of other ways, too. This rugged unit works outdoors and indoors to keep things moving. Here is a labor saver that has cut handling costs as much as $36 a day. Send coupon. We'll send you complete information at once.

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THE PRIME MOVER CO., Muscatine, Iowa F-7

Gentlemen: Please send information on Prime Mover for handling .....

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Company .....

City ..... State .....

type of cleaning agent without danger of discoloring his belt.

One manufacturer also offers the following three types of coatings.

Incline Plastic

This is a coating which fills a need for the designer of steep incline conveyor systems. It is a highly plasticized material which attains a strong bond to the carrying side of an untreated belt and creates an extremely high coefficient of friction between the belt and the material it is conveying. It can be used as a very thin coating for conveying heavy packages, rough boxes or other items which cause high surface abrasion, but it is normally applied about 1/16″ to 3/32″ thick. The surface is usually quite rough but can be made as smooth or as rough as the designer requires. It has an actual coefficient of friction beyond that of any other belt and will allow inclined angles as high as 45 degrees.

One of its most desirable features is that the work is always riding on the coating. Hence the belt experiences no wear and this coating can be very easily renewed on the job.

Incline Crepe

This is an actual 1/16″ crepe rubber which is firmly cemented to the belt and is reinforced on the edges and at 10″ intervals with extra stitching. Its crepe surface is absolutely uniform and is recommended where a perfectly smooth belt with an extremely high coefficient of friction is required.

Incline Sponge

This is similar to Incline Crepe in that a completely uniform sheet of a special sponge rubber is firmly cemented to the belt and stitched on at the edges and at 10″ intervals. Its bond to the belt is very strong and it has the amazing characteristic of being able to hold heavy objects on the belt up to extreme angles. Test samples are available from belt manufacturers so that actual tests can be made before the conveyor design is decided upon.

Curing

The final step in belt manufacture is one of the most important factors controlling the physical properties of the manufactured belt. Unfortunately, this factor is passed over by most conveyor designers in writing the specification of a belt and is sometimes treated very lightly by belt manufacturers in an effort to reduce the price. The various treatments and coatings detailed above must be dried and set properly before the belt is put into service, or they lose many of the properties for which they were intended. Furthermore, cotton fibres will continue to stretch up to a certain point, after which point, unlike leather belts, they take a permanent set. Practically all of this stretching can be

done by the belt manufacturer if he has facilities and is willing to spend the time on the belt.

Belts that are not maintained under stretch in the factory long enough to dry or set will show excessive stretch and will give a shorter service life.

Belts cannot dry properly if they are cured in a rolled condition. Obviously, the edges are the only exposed surfaces when a belt is rolled. Therefore, to attain proper drying and setting, a belt must be completely exposed which requires that it be stretched on a frame. Not all belt manufacturers cure belts in this manner unless specifications call for it. Production costs can be lessened by impregnating the belts under tension and immediately rolling them. The conveyor designer should be meticulous about specifying horizontal curing with all surfaces exposed, as well as a minimum time limit on curing.

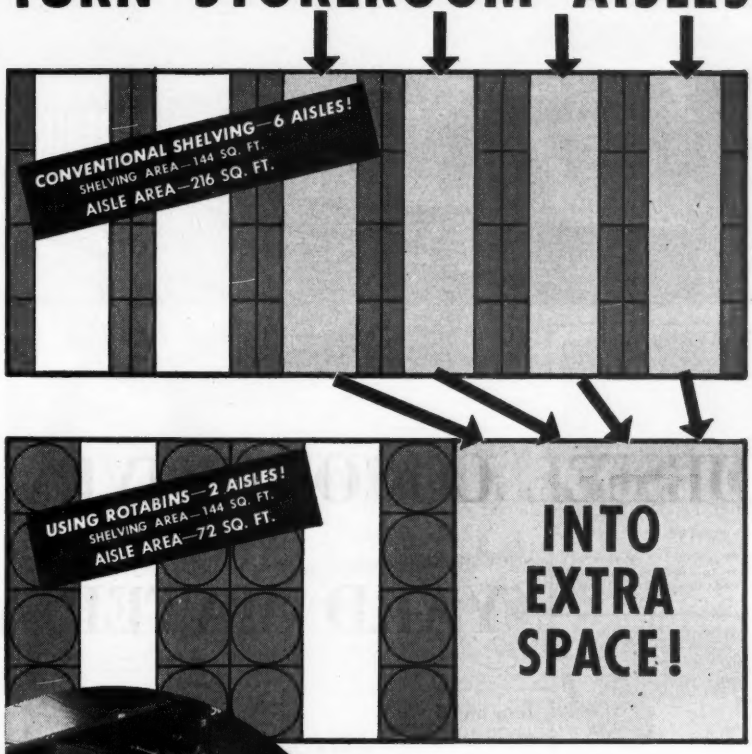
"Belts that are not maintained under stretch in the factory long enough to dry or set properly will also show excessive stretch and a shorter life. The thicker the belt, the longer it should be cured; a good 8-ply belt may be kept under stretch for several months before it is considered ready to use. The output of a belt factory can be increased and the cost of the product decreased by shortening the time of "cure", but it is apt to be at the expense of quality in the belt."*

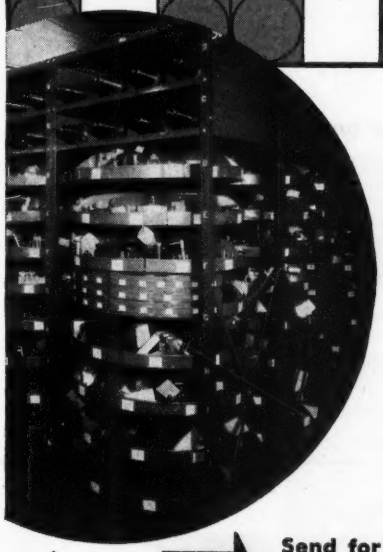
Except in the case of Class 3 wax belts, a belt should be kept under maximum tension on the curing frames an absolute **minimum** of five days and a desirable minimum of eleven days before it is rolled for shipment. This is true even of untreated belts since elongation can be held to a minimum in this manner.

A LONG SECTION—A 1200-ft.-long conveyor belt presented an unusual problem for the Goodyear Tire & Rubber Co.'s traffic department when it shipped this two-roll unit from the plant in Akron to a customer in Pennsylvania. One of the longest conveyor belts ever shipped in one continuous piece, it was necessary to obtain special permits from the states of Ohio and Pennsylvania to transport the belt on the highways. A low-slung truck was used in order to clear bridges and underpasses. The 42-in.-wide belt weighs more than 13 tons and had to be loaded on the truck by means of pipe rollers.

Acknowledgment! FLOW acknowledges with thanks the Main Belting Co., Philadelphia, as the source of the data and exhibits appearing in this article. Thanks also to the Imperial Belting Co. and Victor Balata and Textile Belting Co. for their help in checking the manuscript.—Ed.

TURN STOREROOM AISLES



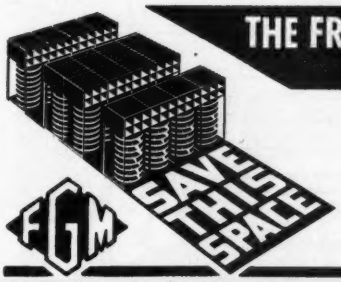


You can *increase* the storage capacity of your present storeroom area or you can *release floor space* for production facilities by applying Rotabin storage methods.

By mining the "gold" that's *in your plant* you can, in addition to obtaining extra floor space without building, reduce servicing time, waiting time and overhead to step up plant efficiency.

WRITE TODAY!

Send for Folder 220 which explains the Rotabin method, shows wide range of equipment; or ask for representative to call, without obligation.



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PIONEERS IN THE DEVELOPMENT OF ROTATING STORAGE EQUIPMENT

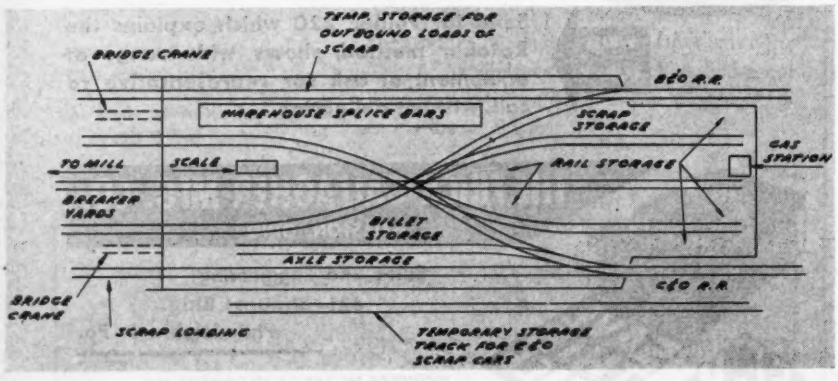
20-TON ENGINE transfers eight loaded cars simultaneously.

DIESEL LOCOMOTIVE . . .

YARD MATERIAL HANDLER

A 25-ton diesel locomotive crane and a 20-ton diesel switch engine have effected cost reductions for this re-rolling mill. Included are a 66 per cent decrease in handling time and a sharp drop in demurrage charges. Approximately $6000 has been saved each year since this equipment has been in operation.

EACH month an average of 20,000,000 lbs. of material is handled in the yard of the West Virginia Steel & Mfg. Co., Huntington, W. Va. Receivals consist of used railroad track, bars, plates, used rail car axles and new billets. As the country's largest re-rolling mill



YARD AND IN-PLANT activities are closely coordinated. 20,000,000 lb. of material are handled monthly in the yard.

for rails, the company fabricates eight to 60-lb. rails into lighter weight track for use in mines and industrial plants. Other products include agricultural implement shapes, angles, flats, reinforcing bars, fence posts and railroad trackwork.

Too Slow for the Job

Until three years ago, the company used two 20-year-old steam locomotive cranes in the yard. One crane was employed primarily for unloading, stockpiling, and re-loading plant-bound cars. While the other one was sometimes employed for similar tasks, its main assignment was transferring rail cars around the yard and in and out of the buildings. However, it was not fast enough to meet the requirements and it was necessary for the railroads to send engines into the plant twice each day to handle large numbers of cars.

High demurrage costs because of slow unloading and inter-plant transfers and high maintenance costs and lengthy maintenance time for the steam cranes were major factors in the company's desire to install more up-to-date yard handling equipment. Another disadvantage was that operators had to be on the job before the workday normally began to fire up the cranes. Refiring during the day was a time-consuming task.

Diesel Locomotive Crane and Engine

In 1947, the company purchased a 25-ton diesel locomotive crane and a small (20-ton) diesel switching engine. The crane takes care of all receivals while the engine, which can transport up to eight loaded cars simultaneously, is responsible for all switching. Ordinarily the crane is equipped with a magnet and lifts four or five 130-lb. rails or eight to ten 60 to 85-lb. rails.

As shown in the accompanying layout, incoming material arrives from two railroads whose sidings are located at the north and south sides of the 400′ x 800′ yard. The

Materials HANDLING EQUIPMENT
CUSTOM BUILT TO MEET YOUR NEEDS

SHOVEL TRUCK
Item B-339 B $27.50 Metal Wheels
Item B-339 C $32.50 Rubber Tire Wheels
For pick-up and moving heavy barrels, drums, bags, pans, crates, hampers or cases. 48" high; weight approximately 50 lbs.

Item B-488 R Rubber tired wheels $42.00
Item B-488 M Metal Wheels $38.00
CARBOY TRUCK
Gripping Yoke loads automatically. Steel studs on truck grip the load—no slipping—all steel, welded construction.

Item NS-364 3 ton $150 | Item B-704 5 ton $225
SHEET STEEL GRAB
Handles sheet steel bundles, any size 0" to 9" thick, 18" to 48" wide and any length.

Item B-746
CORRUGATED BOX with legs
For moving or storing heavy metal parts; built of heavy corrugated steel; angle iron reinforced. Size and load capacity to suit.

Combination TRUCK and DRAIN RACK
Loads Automatically
A dual purpose truck that can be used to move barrels or drums and also serve as a drain rack. Available in two styles—with or without detachable handles. Sturdy frame-welded construction. Weight approximately 90 lbs.
Item NS-506 (Handles welded to frame) $42.50
Item NS-506 DH (truck complete with detachable handles) $44.50

B-205 $15.00 Drum and Barrel Sling
Handles barrels, drums, kegs—anything with a lip. Half ton capacity. Heavy welded chain and forged grab hooks. Wt. 8½ lbs.

Gear type dumping rockers.
Automatic coupler at rear.
Side Dump TRAILER TRUCK
Heavy gauge reinforced steel body, mounted on substantial structural steel framework. Sturdy pull bar 30" long—all welded construction. Four 18" by 3½" metal roller bearing wheels, with moulded on rubber tires.
Item B-380—1½ $383.55

TRUNNION BOX TRUCK
Speeds handling. Of heavy bar stock, well reinforced, tubular handles, welded construction. Two 10" roller bearing metal wheels.
B-268 $45.00
Square Trunnion Box
12 gauge steel plate square trunnion box—18" x 18" x 24". (Minimum lots of 10) Wt. 80 lbs. B-290 $18.65

TRUCKS—SKID PLATFORMS—PALLETS—RACKS—WORK TABLES—BOX and BARREL GRABS—CART—BOXES—STORAGE BINS
We design and build all types of materials handling equipment . . . for pick-up, loading, moving, dumping or storage . . . made of metal, or wood, or combination.
When Ordering Always give "item" number; this will help prevent error. All prices are f. o. b. Detroit. Prices subject to change without notice.
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LAMSON CONVEYORS

A busy moment at DuMont—with 465 ft. Lamson Assembly Conveyors in action.

QUALITY serves quality at the huge Allen B. DuMont Television Laboratories, East Paterson, N. J.—where a vast, intricate Lamson Materials Handling System—including three 465 ft. Lamson Assembly Conveyors—helps speed production of DuMont Television Sets. Thanks largely to this Lamson System, one of these superb sets—complete with components—rolls off the lines every 22 seconds.

IT took quality manufacture to produce this time and cost saving Lamson System for DuMont. It took superb engineering as well. The DuMont plant is so gigantic that you could put six to eight Major League Ballparks under its single roof. Here, materials handling is a problem of vast space as well as split second coordination. But Lamson has built its reputation on solving the big ones—and Lamson Engineers stand ready to discuss your materials handling problem with no obligation to you.

Send in This Coupon. If you have an organization in which materials handling is an important part of your operation—you're the man whose business can be helped by a Lamson System.

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Syracuse New York

Lamson Corporation, 1300 Lamson St., Syracuse, N. Y.

Please send me a copy of your latest bulletin on Lamson Conveyors suitable for.....

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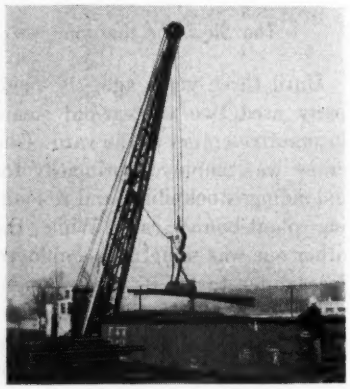
Address..... City..... Zone..... State.....

engine delivers these cars to areas adjacent to designated storage locations. The 50-ft. swinging boom of the crane is designed for spotting loads on either side of the track.

Various types of stocks are arranged to simplify selection. Vertical retaining members, placed in the ground, facilitate stacking up to heights of 10 ft. Upon order from the plant, the crane loads the gondolas and the engine hauls them to destination. The operation is reversed for some finished products or scrap. Some scrap is stored in the yard until enough is on hand for several rail cars (see exhibits).



THIS DIESEL LOCOMOTIVE CRANE loads and unloads rails in one-third the time formerly required.

Stock which is needed immediately is moved directly to the "breaker yard" (stock from storage is also delivered here). This area consists of a large building which covers two 65′ x 400′ bays; each is served by a five-ton traveling bridge crane. At these stations rails are broken to desired length, planed, sorted and inspected, then placed in stockpiles ready for rolling.

Coordinating Yard and In-Plant Handling

In most mills these operations are done in the open in the yard. Placing under cover and adjacent to fabricating gives greater operating ease and efficiency. Of interest is that these operations are under the supervision of the yard superintendent. This is an example of yard and in-plant handling with

the closest possible cooperation. Teamwork has paid off with increased production through more efficient material transfer. Sufficient material is always on hand and no mixups occur since this phase is just as much of the yard handling duties as unloading the incoming carriers.

Formerly, as a time saver in the breaker yard, the overhead crane was sometimes used for moving empty cars so full ones could be spotted. When the crane could not be spared, a gang of men had to be called to move the empty cars. The engine now does the job with a minimum of time. No one's productive effort is wasted.

Yard Handling Time Cut Two-Thirds And $6000 Saved Yearly

The locomotive crane handles material in approximately one-third of the time formerly required. Operating expenses are lower. Demurrage costs have been cut since cars are unloaded faster.

The cost of spotting and transferring cars in the yard by the railroad and plant has been eliminated by the switching engine. Because of this saving, the engine is figured to be amortized in a reasonably short time. It has made loading and shipping operations more flexible because it is not necessary to wait extensive periods for equipment to spot or remove cars.

The efficiency with which incoming stock can be unloaded, stored and fed to the plant has a direct bearing on the production rate. While cost figures can usually be assembled as a proof of better and cheaper yard handling, the dollars and cents value alone does not tell the whole story of manifold production improvements. These intangibles should be considered when planning the purchase of yard handling equipment and determining the correct amortization period. The company estimates that approximately $6000 has been saved each year since the locomotive crane and switching engine were installed.

WOW—what a bargain!

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COLD-FORGED CASTERS

no other casters give you such strength and wear at such low cost

For top economy, you can't beat these new Rapistan Cold-Forged casters! They're tough, sturdy, long-wearing—and amazingly low in cost. The secret lies in cold forging, a process never before applied to the manufacture of casters. Tremendous pressure flows molecules of steel to points of greatest wear; refines metal grain structure, to insure extra strength throughout.

Rapistan Cold-Forged casters have double-ball raceways for oil-smooth swiveling action . . . a grease reservoir for constant lubrication of heavy sectioned swiveling parts. The new cold-forged top plate and yoke provide exceptional hardness, strength, durability and resistance to shock. Available with nicro-steel, durastan resinoid, or rubber wheels, in 3¼", 4", 5" and 6" diameters, with or without thread guards. Capacities from 140 to 400 lbs.

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CASTERS • HAND AND PLATFORM TRUCKS • OTHER PRODUCTS: CONVEYORS—Power or Gravity, Portable or Stationary

How The DeVilbiss Co. engineered

SIMPLIFIED HANDLING FOR C

Receiving and storage methods for odd-shaped castings and forgings which arrive in numerous types of containers, and also for bar and flat stock.

By M. D. MURPHY
General Foreman of Material Handling
DeVilbiss Co., Toledo, Ohio

THE DeVilbiss Co. is one of the world's outstanding manufacturers of industrial paint spray and exhaust systems and air compressors. It is also prominent as a producer of medicinal and perfume atomizers.

Our receiving is complicated by a wide diversification of materials which arrive in many different containers. These materials, from which are manufactured 35,000 to 45,000 different parts, must be handled on schedule to provide a constant supply to our many machining and processing departments. We maintain parts for hundreds of models, some of which are manufactured very infrequently. Replacements for obsolete models must also be stocked. Millions of parts are in the stockroom at all times.

Problem Created by Variety of Shapes and Sizes

Our monthly receivals average 3,000,000 lb. This includes flat and coiled steel, brass and aluminum, bar stock, forgings and castings. The last named types constitute a high proportion of the total and the great variety of shapes and sizes makes their handling and storage one of our chief problems. Loads arrive in steel-strapped bundles, piled loose on the floors of the carriers, and in cartons, bags, barrels, boxes and crates.

The raw stock receiving and storage department is 90′ x 125′ and is located at the east end of the plant adjacent to the truck docks. The latter have a capacity of five vehicles; a rail spur is located on the south side. The majority of the goods are received by highway carrier.

Ninety-five per cent of the raw stock is received and stored in this department. Castings are also normalized and impregnated here. This is necessary to seal porous surfaces which must be air-tight because of the nature of our finished products. This phase constitutes an important activity of this department.

Handling Tools and Containers

We selected our handling equipment so that relatively few types take care of the large variety of materials. This also applies to containers. The main handling tools are described in the following paragraph.

One 8000-lb. fork truck (additional ones may be called on if necessary); tiering type semi-live wooden skid bins; hydraulic handlift trucks, two 6000-lb. models with eight-ft.-long platforms, two

OR COMPLEX PARTS

FIGURE 1. Concave carrying surface of truck retains load. A-frame racks are shown, rear.

FIGURE 2. Flat stock stored on racks. For short lengths, planks are laid on 12-in. arms.

FIGURE 3. Steel shelving holds coils. Tags simplify stock selection, inventory control.

FIGURE 4. Shelf-type structures mounted on semi-live skids are transported by jack handles.

FIGURE 5. Semi-live skid bins are stacked by fork truck, which is also used for long moves.

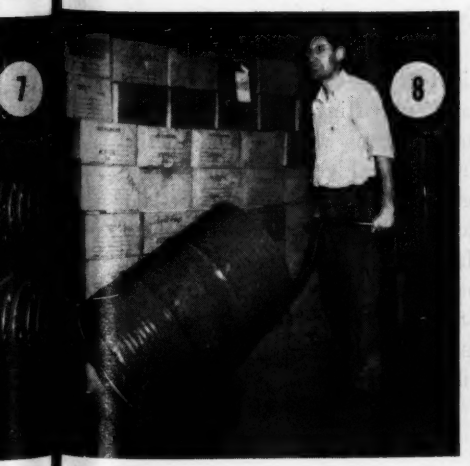
FIGURE 6. Engineered carrier for large lids. Odd shaped castings presented many problems.

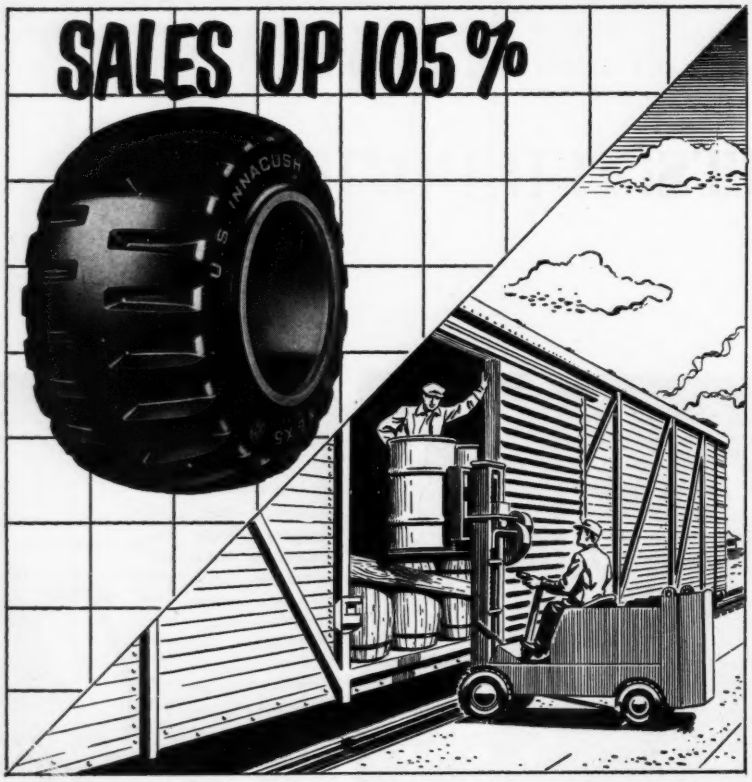
FIGURE 7. For smaller lids, carrier was modified with retainers, holds up to 48 items.

FIGURE 8. Barrel truck, shown with load of castings, simplifies handling of such heavy loads.

FIGURE 9. Engineeed stand for fans is moved by hand truck. Empty stand is shown at left.

FIGURE 10. Extensions of castings are placed through the platforms of stacking type racks.





Why Do So Many "Supers" Prefer U. S. INNACUSH?

Sales prove smart plant "supers" have gone all out for U. S. Innacush . . . for every materials handling job requiring industrial trucks. Why?

Because the U. S. Innacush:

- ★ Reduces steering gear and bearing maintenance.
- ★ Minimizes damage to fragile loads.
- ★ Has a tougher, deeper tread for long, even wear and easy steering.
- ★ Uses a special inner cushion rubber for maximum shock absorbtion, yet increasing carrying capacity.
- ★ Gives greater riding comfort.
- ★ Less subject to chipping and cutting.
- ★ With its lug tread design—gives maximum traction even under extreme loads.

U. S. Innacush is available in a complete range of sizes for almost every industrial truck, and is only one type in a complete line of U. S. Industrial Tires ready to serve your materials handling needs.

Your U. S. Royal Distributor can show you how the U. S. Innacush and the entire U. S. Industrial Tire line will save you money, and how his on-the-spot service will cut your "down time" costs. He's in the Classified Telephone Book —call him today.

U. S. ROYALS

***a product of* UNITED STATES RUBBER COMPANY**

4000-lb. models with five-ft.-long platforms. Other equipment includes two-wheel hand trucks with beveled toe plates and specially designed racks; four-wheel shelf-type structures, 24" x 66" x 66", mounted on semi-live skids. These are used for normalizing castings in the ovens, moving these parts to the machines, and for temporary storage of fast moving items in the receiving department.

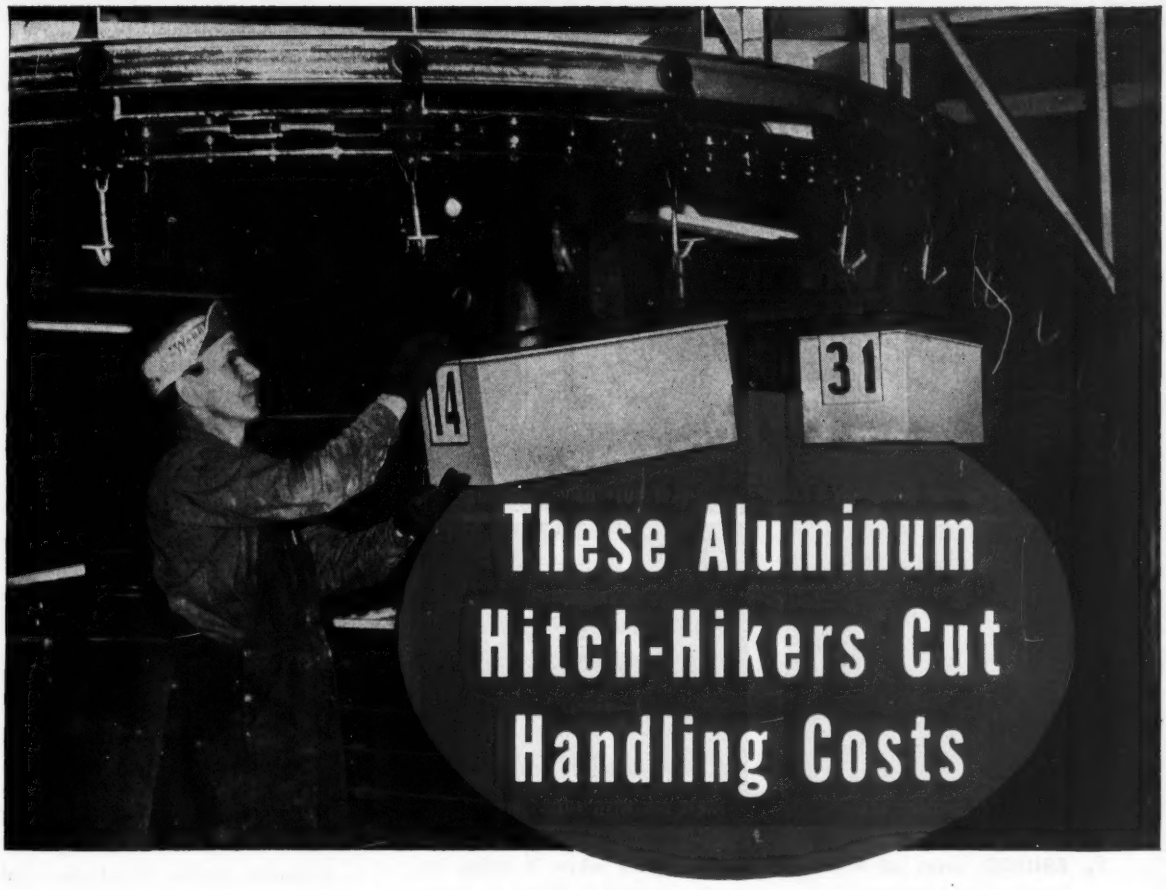
Storage Methods

Each major handling procedure is set out below.

BAR STOCK. This is received in strapped loads averaging 8000 lb., and moved on trucks with concave carrying surfaces. This carrier is shown in Figure 1. Bar stock is stored vertically in A-frame racks which have a capacity of approximately 300 tons. The trucks are also used for transferring the material to the machining area which is adjacent to receiving. The castered carriers offer maneuverability around the machines and require minimum aisle and storage space at these stations.

FLAT STOCK, COILS. Flat stock usually arrives strapped to boards in loads of approximately 200 lb.; coils weigh 100 lb. Small specialized shipments are ordinarily moved by hand trucks; larger, heavier loads are skidded on the docks and transported by hydraulic hand lift trucks. In the department, flat stock is stored in steel racks. Usually it is hand placed because of the light individual weights and infrequency of arrival. If necessary, the fork truck is employed.

The racks are seven ft. high, eight ft. wide and 30 ins. deep. The load supporting members are 12-in.-long arms with retainers at the ends. (See Figure 2.) For shorter lengths of material, planks are laid across the arms. Smaller, lighter flat stock, and all coils, are stored on fixed shelving (Figure 3). These are seven ft. high, three ft. wide, 18 ins. deep. Wooden spacers ordinarily separate individual coils, as



These Aluminum Hitch-Hikers Cut Handling Costs

- LIGHT WEIGHT
- NON-MAGNETIC
- CAN BE STEAM CLEANED OR DEGREASED

The tote boxes of Alcoa Aluminum at the Warren Company's,* Atlanta, Ga. plant would weigh twice as much if made of steel—would take twice as much muscle for hoisting on and off the conveyor—for stacking and other handling. And muscle costs money these days.

Steam cleaning, vapor and solvent degreasing can't harm aluminum boxes. Their non-sparking feature makes handling inflammables safer. Electrical equipment manufacturers like their non-magnetic property.

Yet with all these advantages, their cost is competitive with boxes of other materials. Mail the coupon below for a list of manufacturers. ALUMINUM COMPANY OF AMERICA, 1985G Gulf Building, Pittsburgh 19, Pennsylvania.

*Manufacturers of commercial refrigeration equipment.

Gentlemen:

Please send a complete list of manufacturers who are making tote boxes of Alcoa Aluminum.

Name_____

Title_____

Company_____

Address_____

City_____ State_____

ALCOA

ALCOA®

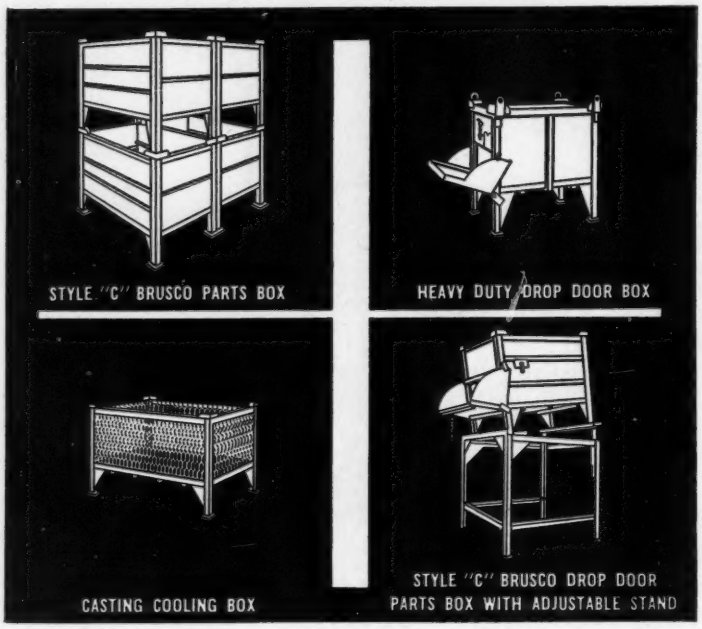
FIRST IN ALUMINUM

IS YOUR PLANT

HANDLING PRODUCTION PARTS

WITH PEAK EFFICIENCY ?

Let **BRUSCO** show you how to hang on to parts handling dollars that you may be losing.


STYLE "C" BRUSCO PARTS BOX
HEAVY DUTY DROP DOOR BOX
CASTING COOLING BOX
STYLE "C" BRUSCO DROP DOOR PARTS BOX WITH ADJUSTABLE STAND

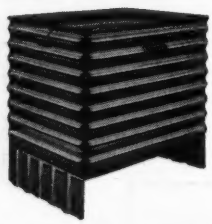
1. **BRUSCO** saves all kinds of valuable space when it comes to handling and storage. Units are easily stacked or tiered to make full use of vertical space, leaving more floor space for production work and machinery.
2. **BRUSCO** is engineered to work with every method of material handling.
3. **BRUSCO** is all steel, welded for strength and rigidity and fabricated with the correct gauge to meet your handling requirements.

Shown above are a few standard items of the **BRUSCO** Material Handling Line. These and many other units of **BRUSCO** equipment can be built to fit your particular handling conditions. *Write for full information. If you have a handling problem, let* **BRUSCO** *beat it.*

HERE'S A Brusco BUY!

Parts Box No. 524

A standard parts box with 14 gauge corrugated steel body and 7½" underclearance, 26" wide; 36" long; 26" deep. Loads up to 3000 lbs. with 14 cu. ft. capacity. Tiering plates and/or crane lugs at slight additional cost. *Available in special sizes.*



DELIVERY IN 30 DAYS $26.50 each

Brusco

HANDLING EQUIPMENT

BRUMMELER STEEL PRODUCTS CORPORATION

1410 Ionia Ave. S. W., Grand Rapids, Michigan

shown. Coils constitute a very small part of the total volume.

Engineered Work Carriers

CASTINGS AND FORGINGS of aluminum and iron make up the majority of the total incoming shipments. They provide some interesting examples of storage and handling. Die castings usually arrive in cartons averaging 50 lb. They are skidded and transported by hand lift trucks. Pallet loads range from 18 to 50 containers. Bags of iron castings and forgings average 250 lb. and are also palletized and transferred by hand lift truck. Wooden boxes and crates, averaging 250 lb., are similarly handled.

The containers are immediately opened and the contents placed on semi-live platform bearing shelf structures for transfer to the ovens. The shelves rest on angle irons on three-in. centers, allowing adjustable spacing. A typical loaded carrier is shown in Figure 4. After normalizing, the items remain on these racks and are delivered by a fork truck as needed in processing.

Cylinder blocks, flywheels, and pulleys are placed in semi-live platform bins and stacked by the fork truck, Figure 5. Total loads often exceed 6000 lb. The fork truck usually moves the loaded containers to their point of use in the plant, after which they are manipulated by jack handles.

A particular problem was encountered during the receiving of steel lids, 24" to 36" diameter, used for pressure paint tanks. These arrive loose (average weight is 25 lb. each, but some weigh as much as 75 lb.). The company designed rack type carriers consisting of an angle iron frame with cross members equipped with hooks. The structure is mounted on a semi-live platform, and is shown in Figure 6. Up to 18 lids are hung by their handles in each carrier.

For other lids, 12" to 36" diameter, another model was developed, Figure 7. These lids are held vertically by slotted retainers. This model holds up to 48 units in three rows.

Lids are so handled from receiving through processing to finished goods storage. Consequently, many rehandlings are eliminated; the only time they are removed is during plating operations. Fork trucks are designated for longer moves, hand jacks are used around plating tanks.

Small amounts of castings and forgings are received in wooden, steel and pressed paper barrels and drums. These are either moved with the hand truck or with barrel trucks, Figure 8.

"This One Was Really Tough"

One type of receiving which always posed a particular handling problem was fan blades made of cast aluminum. These were bulky yet very fragile. They are received in 3′ x 5′ x 3′ crates which weigh up to 600 lb. The fans which are 17½″ to 42″ in diameter with varying numbers of blades, do not lend themselves to ordinary ways of stacking or racking. Also, at the machines, only a minimum of space was available and yet they had to be provided in adequate numbers. Finally, they had to be reached by the operators with a minimum of bending.

Close cooperation with methods and standard engineers resulted in a specially engineered stand consisting of a weighted base to which are welded two five-ft. steel shafts, Figure 9. The fans are held in position by the shaft which extends through the bore. The second shaft, resting against the bore, prevents the items from turning. Twenty-four and more fans are held on one stand which is moved by beveled nose hand truck. Because of the fragile nature of the product, it was found expedient to handle these stands individually. At the machines, they provide easy access by the operator, and convenient amounts are contained in a small area because of the vertical retaining member.

Other angle iron racks have slotted platforms through which are placed certain castings with suitable projections. These are tiered

How to Handle a Variety of Jobs on a Single, Lower Investment

Use the Allis-Chalmers HD-5G...

AND THESE 14 TRACTO-SHOVEL ATTACHMENTS

Interchangeable in a Few Minutes!

You can use this versatile combination inside and outside your plant . . . all year 'round, on all kinds of work. Lift, carry and load materials of all kinds, stockpile coal, feed hoppers, maintain yards and roads, spot cars, haul machinery, plow or load snow, bulldoze or excavate. There's no end to its usefulness with these specially designed attachments. Get all the facts NOW . . . ask for a demonstration *at your plant*. Mail this coupon today!

The usefulness of the HD-5 Tractor is further widened by other allied equipment; cranes, skid loaders, winches, 2-wheel scrapers, rippers and rollers.

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☐ Please send me complete descriptive literature on the HD-5G and Tracto-Shovel.

☐ Please have nearest dealer arrange a demonstration at my plant.

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ALLIS-CHALMERS
TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

UNIT 357 on "earth moving" job, lifting globe into position at Midwest Fair exhibit.

It Picks a UNIT to do the Job!

Yes . . . it's really amazing what you can do with a UNIT Crane or Excavator. Take a UNIT 357 Mobile Crane, for example. It travels anywhere! Any time! Powered by ONE engine . . . controlled and operated by ONE man. Compact, it has light-truck mobility — the smoothest operating and easiest handling crane made. Works efficiently even in small yards where space is limited. FULL VISION CAB gives operator complete visibility in all directions.

UNIT 357 is self-propelled . . . mounted on six pneumatic tires . . . duals on the rear . . . singles on the front. Balanced weight distribution keeps entire undercarriage on ground while working. Dimensions meet all highway requirements. Get the complete UNIT 357 story. Write for bulletin.

CONVERTIBLE TO ALL ATTACHMENTS

Rapid conversion, from one attachment or boom to another, is one of the many important UNIT 357 features. If the material handling operations in your plant call for magnet, crane, or clamshell, the UNIT 357 is the logical, and economical, answer to your problem. There is no limit to UNIT 357 versatility!

UNIT CRANE AND SHOVEL CORP.

6531 WEST BURNHAM STREET • MILWAUKEE 14, WISCONSIN, U. S. A.

SHOVELS • DRAGLINES • CLAMSHELLS
CRANES • TRENCHOES • MAGNETS

A 5696-2/3A

and transported by a fork truck (Figure 10). The handles of spray guns are one example of an item of complex contour which is successfully stored in this carrier.

Tote pans and small perforated baskets are designed for some forgings, screws, and very small castings; they are stacked 10 and 12 high, usually with wooden spacers between. Very slow moving parts are stacked neatly on the floor and transferred when needed in the skid bins. Replacements for old models are similarly stored.

PALLETIZED ROPE—A typical pallet-load of bales of abaca weighing approximately 1600 lb. is lifted by a fork truck on the rail-receiving platform of the North Plymouth, Mass., plant of Plymouth Cordage Co. Before modern handling equipment was introduced, men tusseled with individual bales. Note the light line tied about

upper part of bales to prevent their toppling. The guard over the operator's head was advisable since loads are tiered as high as 129 ins. in the warehouse, and a shift of center of gravity during operation might cause bales to fall back. To date, no such accidents have been reported.—Courtesy Electric Industrial Truck Association.

The development of the system in our receiving and stores department was done with an eye to expedite subsequent handlings through fabrication and processing. The realization and successful application of this system was only possible through the creative assistance of our methods and standard department, headed by Walter J. Tillman. The procedures outlined above have reduced an essentially complex parts operation to a relatively simple and orderly handling method.

Lawrence J. Kline Is New General Manager of Automatic

Lawrence J. Kline

THE appointment of Lawrence J. Kline as general manager of the Automatic Transportation Co. Division, Chicago, was announced by Gilbert W. Chapman, president of The Yale & Towne Manufacturing Co.

L. J. Kline succeeds Elmer F. Twyman, who has been elected vice president in charge of the Philadelphia Division of Yale & Towne. Kline joined Automatic earlier this year as sales manager, after having served the Mercury Manufacturing Co., Chicago, as executive vice president.

A pioneer in the development and distribution of new types of electric industrial trucks, Mr. Kline holds several important patents in the field of materials handling. He has also been president of the Electric Industrial Truck Association (1938), the Caster and Floor Truck Association (1935), and the Materials Handling Institute (1944 and 1945).

Born in Beatrice, Nebr., March 28, 1896, Mr. Kline prepared in its public schools to study mechanical engineering at the University of Nebraska. He left the University in the spring of 1917 to enlist in the Army and was commissioned a first lieutenant, serving in the infantry and then in the air service. Following the armistice, he was appointed director of the Army Air Service in charge of the motor transport branch, until he joined the Mercury Manufacturing Company, in June 1919, as head of its technical department. He rose to become general manager in 1928, vice president and general manager in 1934, and executive vice president in 1947.

Since 1906, the Automatic Transportation Company has been a pioneer in the development of the modern electric auto type, lift truck, and the driver-led but motorized industrial truck.

During the NRA period, Kline was chosen by the material handling industry to help develop industry standards. During World War II, he served on the material handling industry's advisory committee to the War Production Board.

Why use four men?
to do a ONE MAN JOB!
When there's loading or unloading to be done at your plant, you can be time and money ahead by using Magliner Magnesium Dock Boards. With a Magliner Dock Board, one man can do the job, instead of three or four, because Magliner provides "bridge design" structural strength at less than ⅓ the weight of steel! Analyze and compare! The cost of Magliner Dock Boards is far less than the cost of being without them. Write for descriptive bulletin.
For
1 RAILROAD CARS
2 MOTOR TRUCKS
• CONSTRUCTED LIKE A BRIDGE FOR MAXIMUM STRENGTH AND MINIMUM WEIGHT
• CONTINUOUS ONE PIECE EXTRUDED STRINGERS
• NO ADJUSTMENTS REQUIRED FOR VARYING SPANS OR HEIGHT DIFFERENCES
• POSITIVE ASSURANCE AGAINST DANGEROUS SLIPPAGE
• HAND GRIPS (FULL DEPTH) ON ALL MODELS
• SUPERIOR, EXCLUSIVE WELDING TECHNIQUE
• BACKED BY 10 YEARS' EXPERIENCE IN BUILDING MAGNESIUM DOCK BOARDS
Our field engineers will gladly supply you with information on any applications where light-weight magnesium can be used to your advantage. Phone or Write today.
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MFGRS. OF MAGNESIUM Hand Trucks • Bridges • Catwalks
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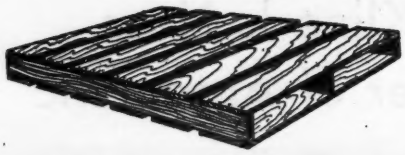
ON THE  PALLET

NEWS • VIEWS • TRENDS

THE Davenport Works of The Aluminum Company of America opened the early part of this year. It is the largest aluminum sheet and plate rolling mill in the world, and is located 3½ miles east of Bettendorf, Iowa. The total area is approximately 400 acres, of which almost 52 acres are under roof. The total floor area of plant buildings takes up about 2½ million sq. ft. Main plant buildings are one story high and are equipped with the latest handling equipment. Continuous crane bays are included in all buildings; bay spacings are 60 ft., 80 ft. and 100 ft., the 80-ft. bay being most common. Overhead cranes have capacities ranging from five to 100 tons. The office building incorporates a new architectural use for aluminum. It is said to be the world's first office structure completely clad in a shell of cast aluminum wall panels.

THE Alvey Conveyor Manufacturing Co., engineers and builders of complete package conveyor systems, has moved into its new plant at 9301 Olive Street Road, St. Louis, Mo. J. M. Alvey, president of the company, stated that the new plant is now in full production. The building is thought to be the largest single plant ever constructed specifically for the manufacture of conveyor equipment. The total floor space is 120,000 sq. ft., all on one floor.

MOTOR car manufacturers traditionally are among the world's biggest customers for a long list of materials ranging from aluminum to zinc. Now Packard Motor Car Co. has added walnut shells to that list. The minute shells are used in the production of Ultramatic Drive, an automatic transmission which combines a torque converter with mechanical direct drive. Company engineers say that finely-ground walnut shells provide an ideal "shot" for blasting tiny metallic burrs off machined surfaces of the drive's castings such as turbines. Each piece of shot is exactly one thirty-second of an in. in diameter and it strikes the casting at a velocity of over two miles a minute. The shot is fed into a turbine-like wheel, which rotates at 250 revolutions per minute, hurling the particles inside a chamber through which the castings pass on a revolving, circular table. Each casting, in addition, rests on a disc which turns in the same direction as the table. Thus, the ground walnut shells rain on the castings in approximately a 140-degree arc.

AN embryo industry which started in a backyard laboratory less than a decade ago now promises to become one of the greatest boons to modern industry, with a saving of more than five billion dollars annually in the preservation of steel and other construction materials. The infant industry is the manufacture of "plastic coatings." As an industry it is about five years old and even its experimental beginnings go back less than 20 years. Originally designed as a protective film for metals to prevent corrosion of army vehicles during the war, the liquid plastic has extended its usefulness to almost every kind of job for which paint normally is used, with several new uses thrown in. Plastic paint now is being used for purposes as diverse as protective coverings for steel piers, permanent coatings to preserve important documents, waterproofing and weather-proofing for houses, anti-corrosive coatings for metals exposed to moisture or acids, and even as lining for laboratory walls and other surfaces exposed to atomic rays.

NO slide rule or yardstick can decide the best method of handling materials in a plant or warehouse. The method and equipment used in one plant to increase production and reduce cost often cannot be applied efficiently in another plant. The layout of the buildings, the materials made or used, and the steps required in the production or distribution of the product are but a few of the many factors upon which the choice depends. Unless a plant has an adequately trained material handling specialist in the organization—and very few companies have one—it will profit greatly by calling on the services of an engineer of a company specializing in all types of material handling machinery, a reputable electrical manufacturer to plan the electrical system, and the power sales engineer of the local utility—only then can you obtain the greatest benefits at the lowest over-all cost.—*From a speech by Joseph A. Setter, General Electric Co., Denver, delivered at the Rocky Mt. Industrial Power Conference.*

MEN IN THE NEWS

C & D Batteries, Inc., Conshohocken, Pa., has announced the appointment of Mark C. Pope as Southern Division manager, with headquarters in Room 513 Whitehead Building, 223 Peachtree Street, N. E., Atlanta, Ga. Pope was formerly Atlanta Branch manager of the company from 1926-1944. From 1945 through 1949 he was district sales manager, Southeastern District, for ACF-Brill Motors Co. Pope is well versed in the technical aspects of selling and servicing C & D batteries for telephone, control and power, fire alarm, industrial truck and locomotive, diesel, carlighting and airconditioning and marine service.

TWO new district managers of lift truck, turret truck, straddle truck and mobile crane sales in eastern territories have been announced by C. H. Collier, Jr., head of eastern division truck sales for the Hyster Co., Portland, Oregon. W. M. Costley will be in charge of a territory comprising Minnesota, Wisconsin, northern Illinois, Iowa, eastern Nebraska, North and South Dakota, and eastern Montana. Dan Stearns will handle sales in Pennsylvania, New Jersey, Virginia, West Virginia and the District of Columbia.

HERBERT C. LULL has been appointed sales manager of Lull Manufacturing Co., Minneapolis, according to an announcement by L. H. Lull, president. He will direct the sales promotion of all products manufactured by the company and will supervise the work of its sales representatives. The company builds a line of allied equipment for industrial wheel tractors and also several material handling units. It was also announced that Dan B. Daily has been appointed assistant sales manager.

SEVEN executives of the General Electric Co.'s Apparatus Department have been named to new positions by Henry V. Erben, G-E vice president and general manager of the department. Neil Currie, Jr., from manager of manufacturing to administrative assistant to the general manager. Ernest E. Johnson from manager of enginering to manager of engineering, Large Apparatus Divisions. Carl A. Salmonsen from manager, Aircraft Gas Turbine Divi-

(Turn to page 59)

"A penny saved is two pence clear."

—Ben Franklin's "Necessary Hints," 1736

In days when venture capital comes not forth, cutting costs in thy shop plows money back into thy business.

—Acme Steel's Notebook, 1950

Mr. Plant Manager: You know that new machines, new methods can help you cut costs on the production line.

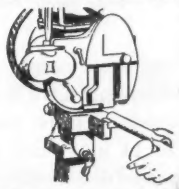
But are you overlooking opportunities to save in your shipping room, in your packaging and materials handling operations?

Most companies can find plenty of new ways to more efficiency and greater thrift, when an Acme sales engineer suggests them. In 9 out of 10 cases, we can help you benefit with Acme Methods and Acme flat steel strapping, Acme stitching machines and wire, and other Acme steel products.

More than 50,000 Acme customers now enjoy these benefits. Why don't you? It won't take long to find out. Just pick up your phone and call the Acme Steel service office nearest you. (There are 46 of these offices in the principal cities of the U. S. and Canada.) Or send the coupon for detailed case studies of savings in your own particular field.

For offices and factories as well as homes, choose Venetian blinds made of ACME GALVA-BOND steel.

Take a tip from the women of America. In Venetian blinds, they choose steel for smarter style...steel for longer life...steel for easier cleaning. They choose blinds of Acme Galva-Bond Steel for lasting beauty. Isn't that a good lead to follow in your offices and plants? Look for the Acme Galva-Bond seal on the Venetian blinds you buy from your local dealer.



Cuts fastening operation costs

Savings of 91 per cent in materials! Savings of 38 per cent in labor! Product quality improved! That's what happened when a spray gun manufacturer put an Acme-Morrison Metal Stitcher on his assembly line to fasten metal to wood.

ACME STEEL

Stop at Riverdale, Illinois, next time you're in or near Chicago, and see our giant rolling mills. We start with a steel billet about the size of a 20-foot 2x4, heat it white-hot, roll it into a ribbon of steel 1/5 of a mile long.

ACME STEEL CO. CHICAGO

ATTACH THIS COUPON TO YOUR BUSINESS LETTERHEAD

ACME STEEL COMPANY, Dept. F-70, 2838 Archer Avenue, Chicago 8, Illinois

We manufacture _____. Please send me booklets on Acme Methods checked.

- ☐ Please have sales engineer call.
- ☐ **Shipping (Carload and L.C.L.)**—"Acme Unit-Load"—The story of reduced damage claims and better handling for shippers.
- ☐ **Packaging, Shipping, Materials Handling**—"Savings in Shipping" tells how to save money and safeguard customer good will with Acme Steelstrap.
- ☐ **Bag and Box Assembly**—"Profit by Stitching" demonstrates cost-cutting Acme Silverstitchers and Acme-Champion Stitchers.
- ☐ **Product Assembly**—"Acme-Morrison Metal Stitchers"—for savings in fastening metal-to-metal or metal-to-other materials.
- ☐ **Book Assembly**—"Acme-Morrison Book Stitchers" for savings in the graphic arts field.

NAME _____ POSITION _____

COMPANY _____

STREET _____

CITY _____ ZONE _____ STATE _____

ACME STEEL CO. CHICAGO

WASHABLE CONTAINERS . . .

(Continued from page 19)

The trays most often used measure 20″x30″x3″; others with the same width and length have depths of five and seven ins. Smaller trays, 20 ins. sq., are three and five ins. deep. All trays have slotted wooden liners on four sides, and perforated wooden bottoms. The slots hold the fillers while the perforations allow the solution to drain off during washing. The bottoms may be removed, and sheet metal frames of the same dimensions can be stacked and bolted (all are equipped with corner lugs) to provide depths ranging from three to 14 ins. Such an arrangement may be necessary for longer parts which are stood on end.

TRAYS WITH DIFFERENT depths are bolted together to provide depths from 3 to 14 ins.

The trays have drop handles for convenient lifting, and a metal pocket on one end for a route card. Color identification is used in some cases to set apart "special jobs." Some trays are painted yellow and red (the majority are green) to distinguish their contents at a glance. This saves time, and prevents "special" containers from being mixed up.

Company engineers selected 30″x60″ skids for the various sizes of trays, which are stacked three rows lengthwise and two and three rows crosswise in an interlocking pattern. Angle iron retainers at the ends of the skids insure safe handling of the costly parts.

Five Containers—1800 Combinations

The 20″x30″x3″ trays are usually partitioned by 31 longitudinal fillers interlocking with 10 shorter members. With the tray's stacking feature and the various arrangements of the fillers, over 1800 different combinations are possible. Some trays can accommodate as many as 700 parts, all in individual pockets. Specially designed V-board fillers retain tubular parts horizontally in their notches. Ordinarily, fillers are arranged to maintain the parts in a vertical position.

WASHED TRAYS are removed from the conveyor which delivers from washing machine.

Fillers are constructed of plywood, pressed wood and formica. Plywood fillers, ranging from 1/8 to 1/2-in. thick are designed for heavier, sturdier parts. Pressed wood fillers, 1/8-in. thick, have a rough surface on one side and are used only for parts which are not easily scratched. Formica dividers, 1/16 and 1/32 in. in diameter, are designated for the protection of soft, easily marred items.

"All Aisles Lead to Washing"

The 50′x70′ washing department is centrally located to the various sections of the building which comprise the plant. At the east side of the department are the washing machine and curved take-away conveyor arranged in a "U" shape, which allows one man to take care of both feeding and removing the trays. That is, the discharge end of the inclined gravity roller conveyor is adjacent to the feed end of the machine. Washed containers awaiting return to the manufacturing area are stacked on skids along the west side of the department.

Incoming skidded trays and tote boxes are spotted in front of the feed end of the 40-ft.-long washing machine.

Inside the washing machine, the containers are first sprayed from all angles by a 180-degree F. solution, after which they receive a cold water rinse. The final third of the machine is a hot air drying chamber.

From the machine, the containers travel on a curved 40″-wide gravity roller conveyor which descends to working height at its discharge end. A drip pan located beneath approximately one-half of the length of the conveyor pipes off excess liquid.

An experienced operator feeds the machine, and when enough containers have been washed he is free to sort the various types and sizes of washed containers.

Maintenance for Future Needs

At the south end of the department and continuing around to the west is steel shelving on which are stacked thousands of replacement fillers of all types. Lumber for bottoms, ends and sides are palletized and also stored here. At the south end of the department is the tray filler repair bench. It is a busy station inasmuch as the containers are in service 24 hours a day.

The elaborate container and washing system adopted by TAPCO is essential to continued high-volume production of expensive parts of irregular contour, which are vital in the performance of many types of aircraft. The containers give the *careful* handling in quantity that is needed. Five basic sizes of trays in combination with the fillers give all necessary arrangements, reduce tray inventory, and provide for additional parts which the company develops from time to time.

Yale & Towne Mfg. Co. Elects Elmer F. Twyman Vice President

THE board of directors of The Yale & Towne Manufacturing Company elected Elmer F. Twyman of Chicago as vice president in charge of the Philadelphia division, to succeed James C. Morgan on June 15, when he retired under the pension plan of the company.

Elmer F. Twyman

The announcement was made by Gilbert W. Chapman, president of Yale & Towne. The Philadelphia Division manufactures and distributes the Yale line of hoists, industrial trucks, scales, and other material handling equipment.

Elmer Twyman, a pioneer in the development and distribution of new types of mechanized handling equipment, has been a prominent figure in the rapid expansion of this industry during the past two decades. He will bring to his new post within the Yale & Towne organization many years' experience in the material handling field, including 15 years as general manager of the Automatic Transportation Company Division of Yale & Towne, in Chicago, manufacturer of the Automatic and Transporter brands of electric industrial trucks.

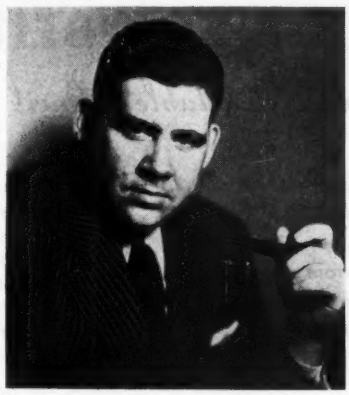
John A. Baldinger, who is assistant general manager of the Automatic Transportation Company Division, was scheduled to be transferred by Twyman to the Philadelphia Division on June 15.

Twyman started his career in the industrial transportation and material handling equipment field in 1911 with the American Locomotive Co. Subsequently, he became New England manager of the Garford Motor Car Co., a subsidiary of Willys-Overland. Later he was general sales manager of the Commercial Truck Company, manufacturer of electric street trucks. In 1928, when this company was acquired by the Automatic Transportation Co., Twyman went to Chicago as general sales manager, directing the distribution of Automatic electric industrial trucks, Barrett-Cravens handlift trucks and Walker electric street trucks.

Under his direction, Automatic pioneered and greatly expanded the development of the driver-led but motorized handlift truck, the auto riding type, hydraulically operated fork truck, and the giant Skylift truck with capacity to handle 100,000 lb. loads used by the steel industry.

Twyman is a past president of the Electric Industrial Truck Association and helped establish the national material handling expositions.

John A. Baldinger was graduated from Williams College, Williamstown, Mass., and from the Harvard Graduate School of Business Administration before he started his business career as sales analyst for the Whiting Corporation in Chicago. During the war, he served in the Naval Bureau of Ordnance as a lieutenant handling all automotive vehicles, including material handling equipment. In 1945, he joined the Automatic Transportation Co. Division as assistant sales manager of Automatic industrial trucks and was advanced in 1947 to become assistant general manager of the Automatic Division.



John A. Baldinger

Under James C. Morgan's direction, the Philadelphia Division developed from a plant normally employing about 700 men and women in the old Tacony Street plant, to one employing 2,250 on several shifts.

In the new Yale & Towne plant located on a 90-acre plot on Roosevelt Blvd., and Haldeman Ave., there are normally about 1,800 employees.

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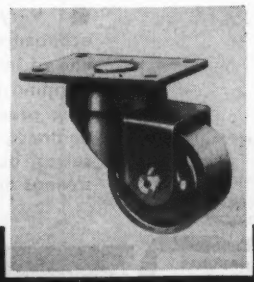

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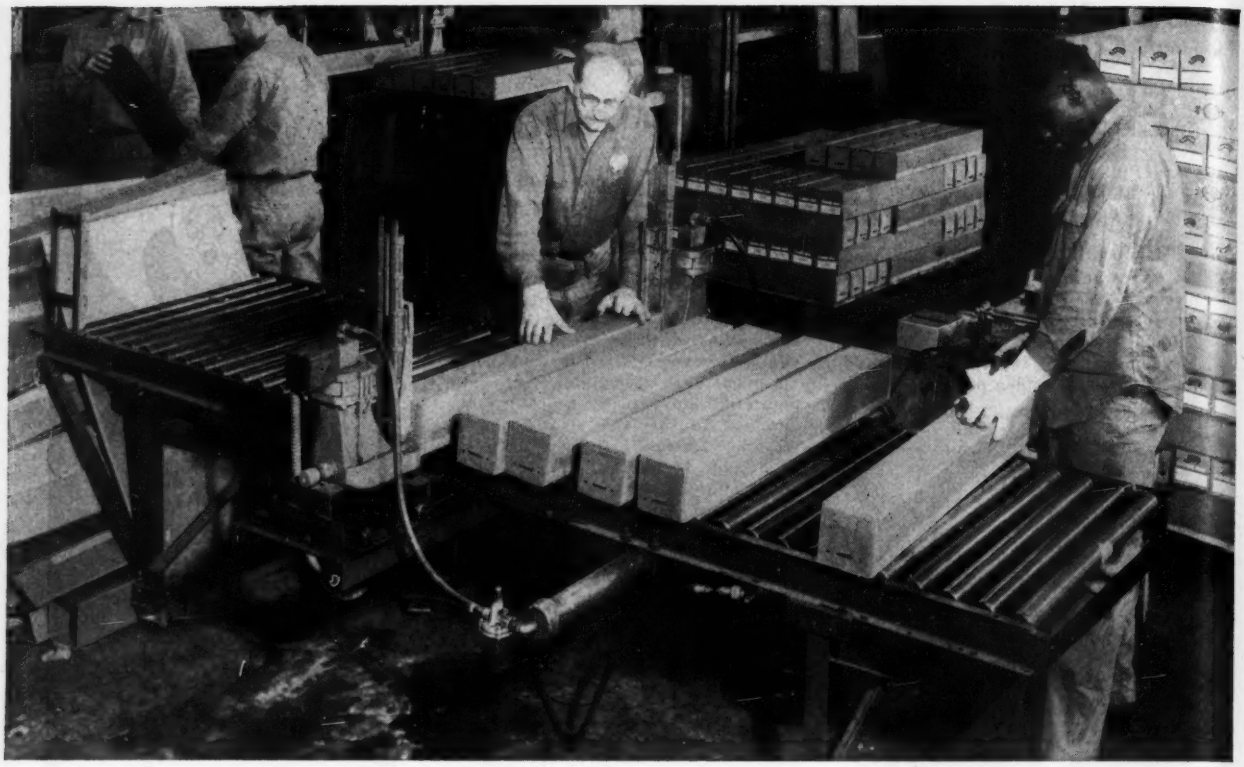

A PICTURE OF 50% BEING SAVED!

With International *Retractable Anvil* Staple Machines

● This photograph was taken in the shipping room of one of our customers. It is another example of how International Staple Machines can solve any shipping problem. Notice the unusual size of the cartons . . . how cumbersome and difficult to close by *ordinary* methods, yet how simple and inexpensive the International way.

The operator merely places the *filled* cartons between the Staple heads, trips a foot switch, and *simultaneously* the tops and bottoms are stapled . . . from the *outside!* Imagine, only one operation needed to close these cartons neatly and securely. Other carton sizes require two, four, and as many as six automatic strokes of the Staple heads . . . consuming a maximum time of *three seconds!*

● Very frankly, we believe that we have the finest, quickest, and most economical method of carton closing in the world today. There is a complete line of International Retractable Anvil Staple Machines to take care of every shipping problem . . . to fit any appropriation. We invite you to compare your present method with the International way . . . compare by price, by neatness, by strength! International Staple Machines not only pay for themselves, but also for the replaced method . . . and from then on show you savings up to 50%.

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EST. 1938

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Distributors in principal Cities

PACKAGING MECHANICS SECTION

A regular monthly section in which are presented solutions to the problems of efficient filling and handling the boxes, cartons, bags, bottles, cases, etc., used in commerce and industry.

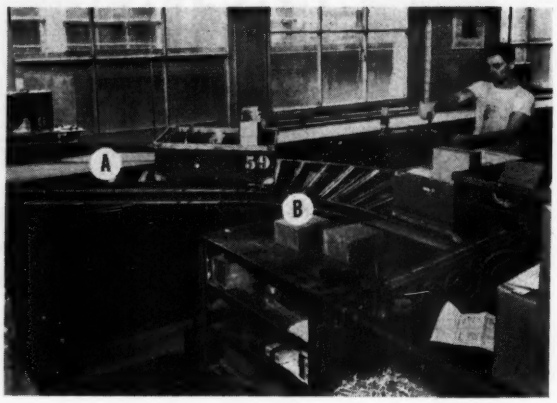
CONTENTS

ASSEMBLY AND PACKING OF SMALL-ITEM ORDERS — at Taylor Instrument Companies. Methods engineered to insure that delicate instruments are packaged and shipped in such a manner that they are in operating condition when they reach the customer. Of special interest: Fiber boxes with dividers which keep small orders separate as they advance to packaging. One man controls the conveyor flow to nine packing stations 46

ASSEMBLY and PACKING of Small-Item Orders

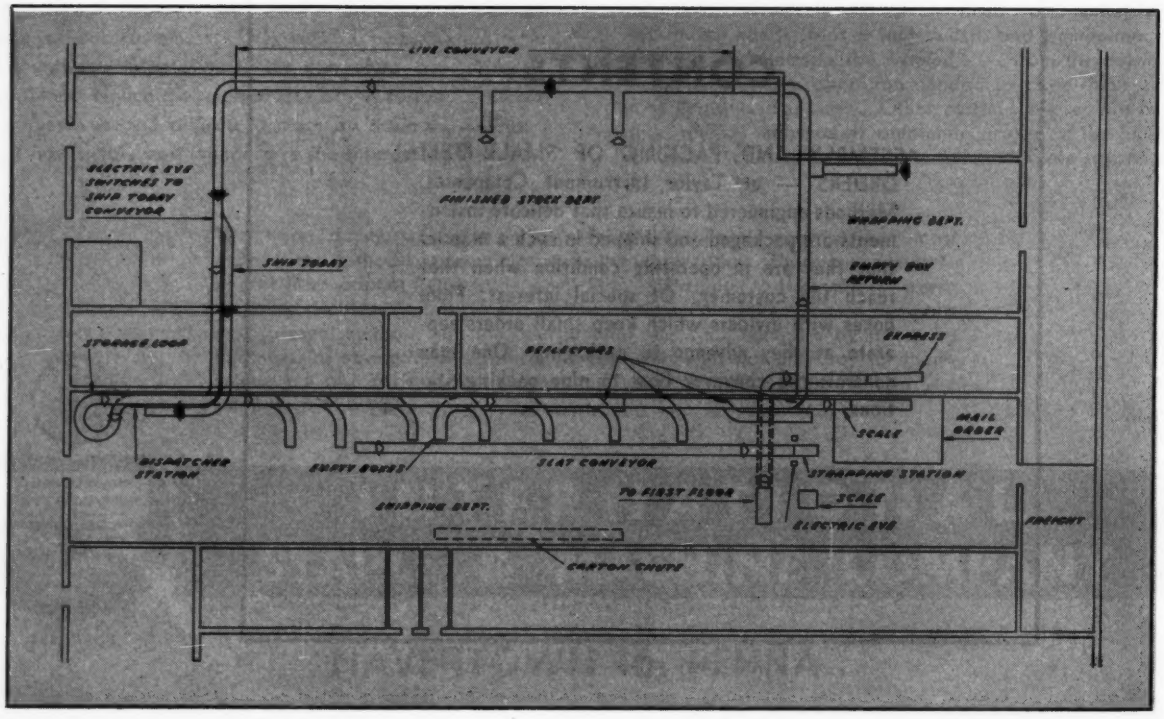
This conveyorized order assembly and packing operation applies to any small-item packing of fragile products which must be handled with care. Here is the method used for delicate Taylor instruments, which must work when they reach the customer.

DISPATCHING STATION, showing control box, part of storage loop. Arrows point to deflectors.



SPUR WITH deflector arm (A) and switch (B).

FLOW DIAGRAM of complete operation. Starting point, the wrapping department, is at far right. Note "empty box return" conveyor line.

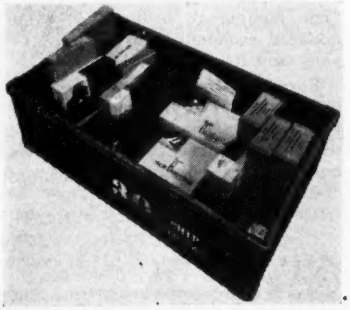


By W. C. COPE
Plant Layout Engineer
Taylor Instrument Companies, Rochester, N. Y.

EVERY day hundreds of precision instruments are routed to our packing department for shipment to all parts of the country. "Handle with care" is a must, of course. Also, confusion between orders must be avoided, and a balanced flow maintained to operators working at a battery of packing stations.

Neat Segregation of Orders by Use of Light-Weight Fiber Boxes

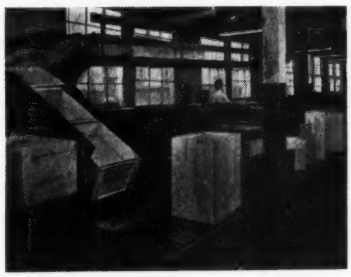
The flow can be followed conveniently on the accompanying layout sketch. The two points of origin of the material are the wrapping and finished stock (order selection) departments. In the wrapping department the products are deposited in fiber containers (19″ wide x 31″ long x 10″ high), which are placed on a gravity roller section for delivery to packing. The outbound containers are discharged on a 120-ft. powered belt, which extends through the finished stockroom. Here orders are assembled from stock shelves, also into the fiber boxes. The latter are light and sturdy, and are an aid to careful handling.



FIBER BOX with dividers separating several small orders.

Since small-quantity orders are regularly involved, we use metal dividers which resemble a "T". When inverted these dividers stand upright by themselves, and thus a half dozen or more orders can be assembled in one fiber container. With hundreds of the latter constantly in circulation, the dividers are an important space saving feature.

Beyond the stockroom, the conveyor makes a 90-degree turn and travels overhead to a switching station, which is controlled by a photo-electric cell. The automatic segregation of two types of orders that pass over this line regularly is both simple and unfailing.



CHUTE DELIVERS empties; steel slat conveyor transports full boxes from packing.

If a "ship today" order is routed, it has previously been placed in a fiber container which has a polished metal tag on one side and always faces one direction. This tag reflects the light ray back into the photo-electric cell, thus actuating a switch which controls a deflecting arm. The latter shunts the arriving box to a second conveyor, parallel to the incoming line, which leads directly to the dispatching station. The "ship today" orders are thus transferred at once into the main "outbound" flow, terminating on a distribution conveyor, for immediate packing.

Previously, all orders were accumulated on the basis of one-half hour or one hour intervals, and were thus routed in groups by means of a mechanical switch. This was rather inconvenient (because of necessary "holding" areas) as compared with the uninterrupted flow of today.

The routine orders are put in fiber boxes with the polished metal tag facing the opposite direction, and thus continue on the main incoming line to a storage loop in the packing room. The dull side of the box does not reflect enough light to actuate the electric eye. From here they are fed to the distribution line by the dispatcher to fill the packers' needs.

One-Man Control of Entire Flow

The dispatcher is located at one end of the room near the end point of the incoming line. He controls the flow by means of a switch box which has nine switches. Each of these controls a deflecting arm on the distribution conveyor that extends along a wall through the length of the packing department. Nine packing stations are arranged in line, and all packers receive their work from the dispatcher at the far end of the room. The flow is also routed by type of shipment—for example, a particular station is designated for parcel post shipments only.

An electric signal light system keeps the dispatcher informed on the amount of work ahead at each packing bench, which makes it unnecessary for him to leave his station for the purpose of making visual inspections. At each packing station the fiber order boxes arrive on a gravity roller spur (shunted there by a deflecting arm). Ten feet from the end point of the gravity roller spur is a contact switch. As long as a container depresses this switch, a signal light stays on at the panel by the dispatcher's station, and thus he knows that the spur is filled. When a light goes off, the dispatcher is aware that more work should be sent to that particular packing bench.

STRAPPING STATION at end of conveyor.

Steel Slat Conveyor, Strapping

A steel slat conveyor serves the eight stations at which the heavier boxes are packed. Full boxes are disposed of on this line, which car-

ries them to the far end of the room.

The packers receive empty boxes via a chute from a nailing department located on the floor above. The slat conveyor is also used for distributing empties to the benches along the line, and travels at the rate of 27 FPM.

Its travel is controlled by a photo-electric cell at the end point. If the operator is not momentarily present to remove an arriving box, the container breaks the beam, thus stopping the line.

A platform for steel strapping purposes is continuous with the slat conveyor. The box is placed in position on cross members, which give clearance for passing the steel banding under and around it.

Certain types of shipment are shunted from this point via a chute and roller conveyor to the first floor for truck pickup; heavy boxes are accumulated nearby for delivery by elevator.

Reference to the flow diagram shows that a conveyor branch extends from the end point of the distribution belt line. This branch serves for returning the empty fiber containers to the wrapping station and finished stock department, the start of the line.

Thus the closed circuit of this system serves for (a) transportation of orders, (b) segregation of particular orders, (c) controlled distribution of the work to nine packers and (d) return of empties. And, with the aid of the fiber containers and the dividers, the need for safe and efficient handling of delicate and costly items is met.

NEW LOW PRICED
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BAG CLOSER..
IDEAL FOR SMALL PLANTS—A HANDY EXTRA MACHINE FOR LARGE PLANTS
Lightweight, practical, handy! Easy to operate. Efficiency and reliability proved by almost 3000 users. Fully guaranteed.
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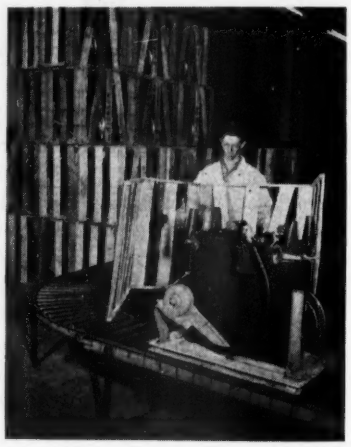
FIVE ECONOMIES—Modernization and simplification of packing room procedures at the Collegeville, Pa., factory of the Judson Bros. Co., makers of farm equipment, brought about pronounced economies for both the company and its distributors.

Formerly, Judson made its own shipping crates for its two-hopper cultivator fertilizer attachment and its one-hopper plow-sole fertilizer attachment. Wirebound crates which are now used for crating the two-hopper attachment have resulted in the following improvements:

1. A reduction of 33 lb., or 15 per cent, in shipping weight. 2. A reduction



of 20 lb., or 40 per cent, in container tare weight. 3. A reduction of from 25 to 10 man-minutes, or 60 per cent, in the time required to pack a cultivator fertilizer attachment. 4. Practically complete elimination of shipping damage due to ordinary shocks and jars. 5. A reduction of over-all packing costs by about one-half.—Courtesy, Wirebound Box Mfrs. Association.

NEWS FROM THE SALES FIELD

W. E. "BILL" DUERSTEN CO., 19 So. LaSalle St., Chicago: it has been appointed representative for the Williford Mfg. Co., Memphis, Tenn., manufacturers of pallets and box pallets. Territory includes Joseph, Cass and Berrien Counties in Michigan, LaPorte, Porter and Lake Counties in Indiana, and also the northeast quarter of Illinois.

ROBERT H. SCHLEUNING, Pittsburgh: he has been appointed representatitve for Plymouth Locomotive Works, Plymouth, Ohio. He will handle switching locomotives and other products in western Pennsylvania and New York, northern West Virginia and parts of Ohio and Maryland.

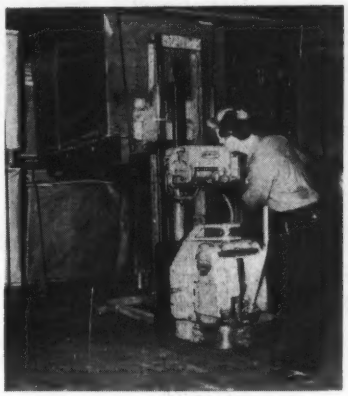
LYALL N. CRISSMAN CO., 314 Boulevard of the Allies, Pittsburgh: it has opened a new showroom and sales office. In approximately 3500 sq. ft. of space, Crissman will maintain sales facilities, handle service parts, and show the latest electric industrial trucks manufactured by the Automatic Transportation Co., Chicago.

THE Ohio Equipment Co., Cleveland, moved to a new location in the same city as of July 1, according to President E. M. Abramson. The new address is 1220 W. 9th. The company will concentrate on such material handling equipment and accessories as conveyor sections, portable elevators, warehouse trucks, and others. It will occupy about 4300 square feet of floor space, which will be divided for office, display and service purposes. During its 40 years in the business the company has gained a wide knowledge of equipment and application problems. Along with service, a broad line will be stressed.

BURNARD C. York, 5807 West North Ave., Chicago: he has been named sales representative by Hapman Conveyors, Inc., Detroit, for northern Illinois, Wisconsin and Minnesota. Hapman manufactures a line of elevator conveyors, enclosed trolley conveyors, pivoted bucket conveyors, trolley type drag conveyors and pressurized feeders.

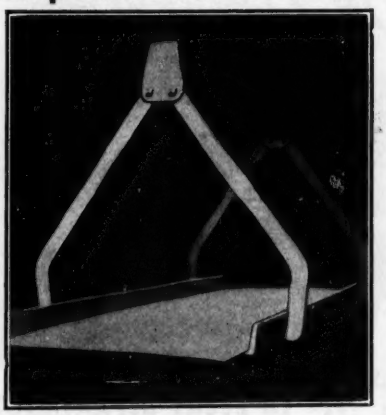
NOOK and O'Neill, Inc., 10028 Carnegie avenue, Cleveland: this firm was named Northwestern Ohio distributor for the Automatic Transportation Co., Chicago manufacturer of electric industrial trucks. President of the Cleveland company is Robert M. Slife, who has held that position since August, 1944.

ADD 25,000 SQ. FT. TO WAREHOUSE—The Mid Town Warehouse Co., Inc., New York, says its two high stacking trucks have added 25,000 sq. ft. of storage space by permitting two-high tiering. Shown here is a truck



tiering more than 3000 lb. of paper. An average load at the warehouse tops this weight. In the past, the company says, only loads weighing under 2000 lb. could be stacked two-high by manual methods. The extra space is said to be worth six cents per month per sq. ft.—Courtesy Automatic Transportation Co.

Inexpensive Sheet Handler



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CAPACITY UP TO 2 TONS

No. 1137, for sheet from 20-48" x 120", cap. up to 4000 lbs., is ideal where the steel handling is moderate. Available also—No. 1142, a higher priced, heavy duty Mansaver for large handlers. Write for details.

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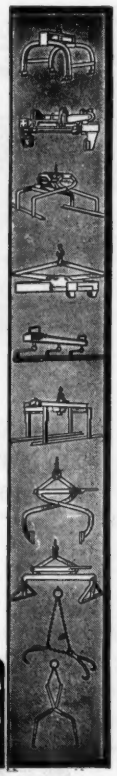

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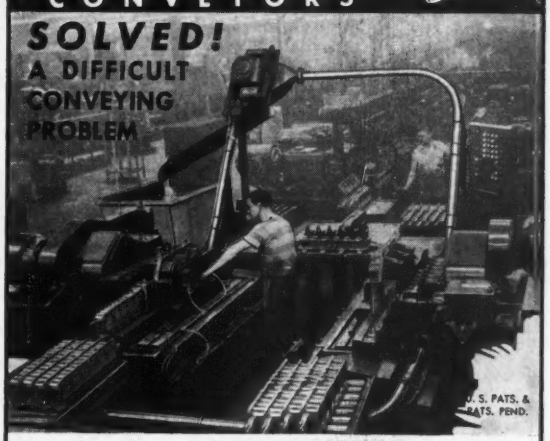

U. S. PATS. & PATS. PEND.

Here, the problem was how to make completely automatic, the removal of dry cast iron chips from the base of 2 profile milling machines in the International Harvester truck engine plant at Indianapolis. Hapman Conveyors job-engineered the installation shown; it operates (1) in 2 planes and 2 directions, (2) without transfer points, (3) requires minimum clearances and (4) few structural supports.

These are but 4 of the 45 difficult conditions now being met successfully by Hapman job-engineered Conveyors. Send for the Hapman catalog showing them in detail and listing the many types of flowable materials handled.

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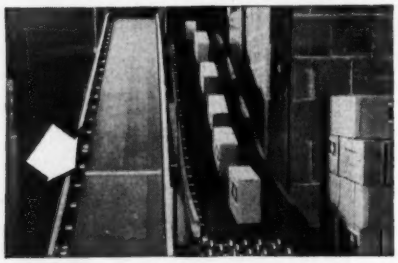

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- ★ For magnetic separators or anti-sparking specify Alligator made of Everdur.
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- ★ 12 sizes. For belts from 1/16" to 5/8" thick—and *any width*.

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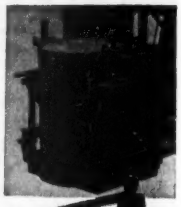

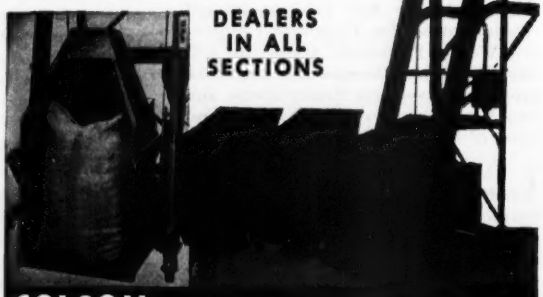

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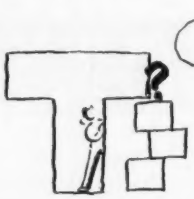

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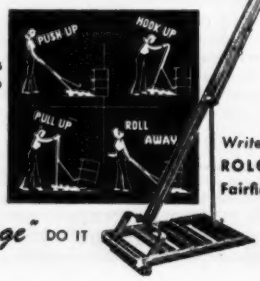

*With apologies to you know who

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LET "*George*" DO IT

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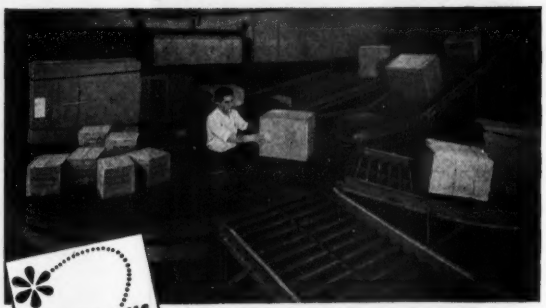
OLSON CONVEYORS



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If your operation involves the moving of parts, products or raw materials, Olson can provide an efficient system for lifting, lowering or on-the-level handling, tailored to meet your specific requirements.

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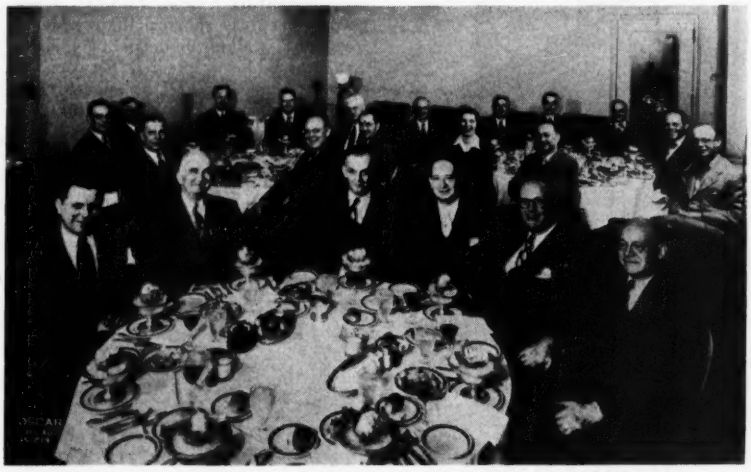
CHAPTER, ASSOCIATION AND REGIONAL MEETINGS

THE Conveyor Equipment Mfrs. Association held its spring meeting during May at The Homestead. Chairmen of the various sections are: Package Conveyor Group, E. C. Logan; Trolley Conveyor Group, G. W. Ostrand; Coal Preparation Group, J. A. Jeffery; Screw Conveyor Group, G. W. Ostrand; Portable Conveyor Group, R. F. Tomlinson; Heavy Conveyor Group, Merrill E. Pratt. President of the association is A. M. Alvey, Alvey Conveyor Mfg. Co.

ROBERT C. BRADY, director of research, Material Handling Institute, Inc., spoke to the May meeting of the Northeastern Ohio Chapter, Cleveland. The following were elected as officers for the coming year. President Frank C. Wier; Vice President, Tom F. Stringer; Treasurer, Ralph Reiner; Secretary, E. T. Rummel. A movie entitled "Material Handling in the Steel Industry" was shown, which was furnished by the Link Belt Co. It was also voted to change the chapter name to Cleveland Chapter, American Material Handling Society.

A. B. Farquhar Co. Midwest Reps. Meet



READING LEFT TO RIGHT: At the front table, M. F. Krivanek, M. F. Krivanek Materials Handling Co.; E. J. Murray, E. J. Murray Sales Co.; R. Kanaar, Muskegon Hardware & Supply Co.; H. Grossman, M. E. Nelson and R. R. Cann, Illinois Equipment Service At the left rear table: W. J. Laskowski, A. B. Farquhar Co.; F. L. Young, M. E. Neprash Co.; Paul Horst, Paul Horst Co.; P. B. Libby and R. F. Horak, M. E. Neprash Co.; H. G. Taylor, Harold G. Taylor Co.; Neal Moore and M. E. Neprash, M. E. Neprash Co. At the right rear table: Roy Dumas and Miss K. J. Styles, Mill City Equipment Co.; D. Slater, Koste Conveying Machinery Co.; R. F. Tomlinson, A. B. Farquhar Co.; C. H. Maize, G. Del Grosso, and William Sommers, Koste Conveying Machinery Co.; E. H. Fisher, A. B. Farquhar Co.

A PANEL discussion highlighted the May meeting of the Material Handling Society of New Jersey. The topic was "Exploration of Comparative Attitudes of Management and Organized Labor Toward Introduction of Labor Saving Material Handling Devices". Speakers were: for labor, Solomon Barkin, research director, Textile Workers Union of America; for management, William V. Machaver, director of training, Johnson & Johnson.

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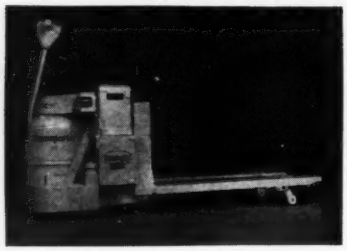
NEW PRODUCTS

For additional information on these products, write Dept. 5, Flow Magazine, 1240 Ontario St., Cleveland 13, or use postcard bound into this issue.

REDESIGNED PALLET AND PLATFORM WALKIES

NP1—The Automatic Transportation Co. has redesigned two models of its line of hand-guided motorized trucks which incorporate increased ruggedness and operating performance in vehicles which are one ft. shorter than their predecessors. These models were introduced at a series of special showings held in conjunction with local distributors in various cities throughout the country.

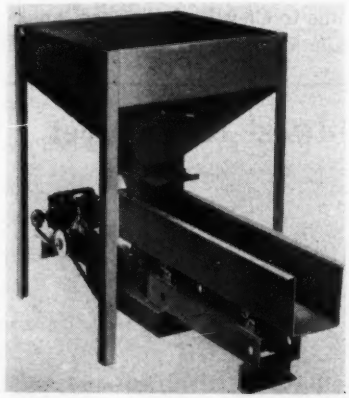
The new vehicles are of the platform and pallet types and are available in 4000 and 6000-lb. capacities. The length



of the pallet model is now 30⅞" plus the length of the forks. The platform vehicle is only 27⅝" plus the length of the load carrying member. Redesigned for a lower center of gravity, the height is 5½" less than that of previous models; the new height of the power unit is 29½". A cast drive housing is said to afford fullest protection to all operating parts. The battery is protected by a solid steel enclosure which has hinged doors and a drop-open lock for quick battery changes. Forward and reverse speeds, lift, steering and brake movements are controlled from the handle. Drive tires measure 10 x 5 on the 4000-lb. model and 10 x 6 on the 6000-lb. vehicle. Steel load wheels are available if desired. For further information, use the enclosed postcard.

VIBRATING FEEDERS AND CONVEYORS

NP2—A line of vibrating feeders and conveyors, known as the Free-Flow Feeders and Conveyors, has been introduced by the Free-Flow Co. The models are of the mechanical vibration type, having a positive action that insures a uniform conveying speed regardless of load, and a balanced, pendulum construction. Thus, the action and the reaction are in the machine itself, and not transmitted to the building. They are self-cleaning. Other features include accurate control of feed, low power consumption, and quiet operation. They can be made in any length, using a single drive. Hot or cold mate-



rials of any size or shape can be conveyed horizontally, around corners, and up inclines. It is also stated that troughs can be furnished in any suitable material and may be open or enclosed. Applications include transporting foods, chemicals, grain, spices, metal turnings and trimmings, sand, coal, and a wide variety of other materials.

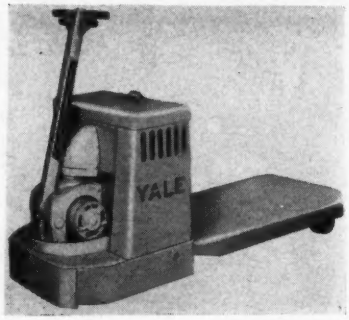
TRANSFER PLATE

NP3—A transfer plate for truck docks has been designed by Wm. Christensen Co., Inc. The plate is mounted on the floor of the dock and easily moved up

and forward onto the truck platform. It is designed so that it cannot creep or shift out of position and has a non-slip safety tread. It is available in sizes of from 40"x54" to 54"x70" with capacities from 3500 to 15,000 lb. It has all-steel welded construction with steel-ribbed reinforcements. It has a 20 to 35-in. extension beyond loading dock; when not in use it becomes part of the floor.

SHORTER WALKIE TRUCK

NP4—The Yale & Towne Mfg. Co. is manufacturing a new "Stubby" Work-saver, six ins. shorter than previous company walkie models. This six-in. saving has been effected between the battery box and front edge of the truck, thus retaining full platform lengths for handling skids and skid bins.



The truck is designed for handling skids and skid bins in such confined areas as freight cars, street trucks, narrow aisles and elevators. It is available in 4000 and 6000-lb. capacities. Standard platform lengths range from 36 to 72 ins. in six-in. increments. Heights of 6", 7", 9", 10", and 11" are available for handling skids of different heights. Platform widths are available in 19", 24", and 26" sizes. Lifting is accomplished by hydraulic mechanisms. Twin hoist cylinders are equalized for uniform lifting of loads with conservative oil pressures. A solenoid operated lowering valve with built in flow regulation gives controlled lowering for cushioning action upon descent of load. An overload relief valve is built into the solenoid unit to protect the hydraulic system against excessive pressures.

FOUNDRY HOOK

NP5—American Chain Division of American Chain & Cable Co., Inc., has announced a hook designed for trunions and other foundry uses. Hooks are

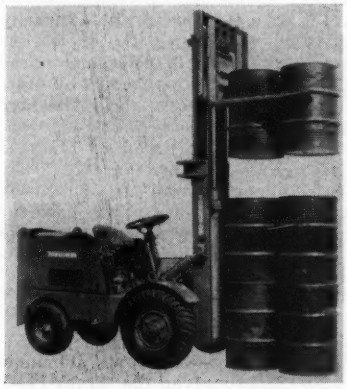
forged into a round at the point for easy insertion in holes in castings. These hooks are furnished only as an integral part of complete sling chains manufactured by the company. Other features: hooks are of the same material as the sling chain; the entire sling assembly is proof tested from bearing point to bearing point.

MEDIUM CAPACITY FORK TRUCKS

NP6—Fast-action handling of loads up to 4000 lb. is a feature of a new model medium-weight electric power fork truck announced by Elwell-Parker Electric Co. In tiering operations this truck lifts to a base height of 130 ins. in 26 seconds. Going up light, the fork attains the full 130-in. height in 15 seconds, and it lowers a capacity load from same height in 16 seconds. Travel speed on straight-away with full load is 5½ miles an hour. Lift cylinder is above vision point when load is elevated. Contributing to this is a newly developed telescoping single-cylinder, low-pressure, double-action hydraulic system in the center of the telescoping uprights. Also, friction between this secondary hoist and the primary upright column is reduced to a minimum by six anti-friction rollers serving as bearings. The rollers, mounted three on each side of the secondary hoist frame, travel within the inner flanges of the primary column. They are sealed, self-lubricating. Truck's overall length with 36-in. fork is 116 ins; width, 41 ins; height with uprights telescoped 83 ins. It has a short turning radius, 74 ins. in intersecting aisles; 134 ins. in right-angle aisles.

HYDRAULIC DRUM FORKS

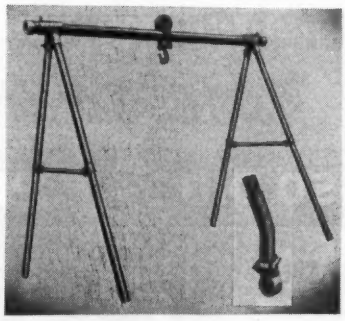
NP7—A time-saving development to help speed materials handling operations are these Hydraulic Drum Forks, engineered by Towmotor Corp. Ordinary pallet fork operations, plus the handling of steel drums without pallets, can be accomplished with the forks. The right-hand fork can be moved laterally by a double-acting hydraulic cylinder, while the left hand fork is anchored in a stationary position. To pick up two steel drums, the movable fork is first shifted outward, then the lift truck approaches the drums, allowing the forks to pass to either side and below the upper rolling rings of the drums. Concave notches on the inside



edges of the forks then make close contact with the side of the drums when the movable fork is closed. Drums are then picked up between the forks and supported by the rolling rings. To handle other type pallet loads, forks are used in the normal manner.

PORTABLE GANTRY CRANE

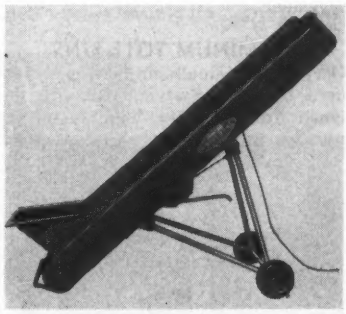
NP8—Wise Engineering Co. has developed a portable gantry crane which can be set up or dismantled by two men in 10 minutes, it is said. The regular stock model is built to handle two-ton



loads; the entire crane can easily be lifted from one place to another. For additional portability, slip-on boots with four-in. casters are provided where a considerable amount of moving around on the job is required. These boots are made slightly over-size so that they can be easily attached or taken off, yet they are rigid while in use. Greater capacity models are available.

BELT CONVEYORS

NP9—Industrial Engineering & Manufacturing Co. is in production on a new line of industrial conveyors designed to serve a wide range of conveyor and elevator needs. One is the Model 408-U, built especially for off-bearing in punch press operation. This model has a channel length of eight ft. and comes equipped with six-in. side panels. Other models are available in lengths of four-



ft. graduations up to 24 ft. All standard models have a frame width of 15 ins. and belt width of 12 ins. Standard spacing of cleats is 18 ins. from center to center. The belt is of high quality 4-ply, 32-ounce canvas belting (unless otherwise specified). Models may be purchased with or without side panels and chassis and/or otherwise altered to fit any type of application. The motor is split phase 110-V., A.C., S.P. Standard belt speed is 74 F.P.M. but may be adjusted simply by changing combination of roller chain sprockets. The eight-and 12-ft. models are equipped with five-in. diameter drive pulley and four-in. idler take-up pulley. On the 16, 20 and 24-ft. models, six-in. diam. drive pulley and four-in. idler take-up are used.

OVERHEAD TROLLEY

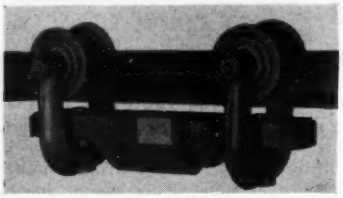
NP10—An improved Ohio Tramrail trolley for use on hand or electric powered tramrail systems, transfer bridges, and tramrail cranes is announced by the Forker Corp. Operator fatigue is reduced and payloads are increased through elimination of dead weight and reduction of rolling friction, it is claimed. Drawbar pull on the heavier capacity Ohio Tramrail trolleys after normal break-in period is said to be reduced to 15 lb. per ton to start the load rolling and 10 lb. per ton to maintain momentum. Factors of safety built into the new trolleys are reported to enable them to take shock loads considerably higher than their rated capacity. High strength to weight ratio is obtained by utilizing a modified tube cross section design for the trolley yoke from two steel stampings welded back-to-back. This combines lightness with material

Conveyor Manual With Layout Sheets

AN UNUSUAL 38-page manual is offered by the Barber-Greene Co. on its Redi-Fab series belt conveyors, which includes layout sheets together with instructions on "how to lay out your Redi-Fab conveyor." These conveyors may be ordered from stock from a wide variety of small increments of width, length and horsepower. Standardized sectional construction is said to make the conveyors simple to erect. This feature together with interchangeability of parts is designed so that an existing installation can be altered to meet new operating requirements.

In easy-to-understand form the publication describes how to lay out conveyor installations (with reference to engineering drawings and charts). The reader is informed how to select the types of drive units, conveyor components, shipping package breakdowns and specifications. Of special interest is the conveyor layout sheet which is used by the customer for planning an installation. Other subject headings include head and terminal, foot end terminal, intermediate sections, ball bearing carriers, drives, reducer drives, power units, supports and feeders. A copy of this publication is available free of charge. Write to FLOW, 1240 Ontario St., Cleveland 13, Ohio.

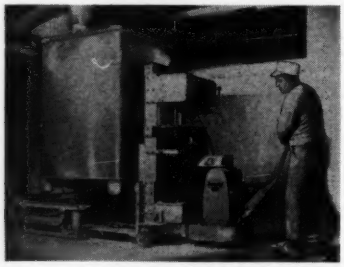
concentrated at the points where high stress occurs. Further weight reduction is accomplished with the use of channel-shape rolled steel plate load bars. The



trolley yoke swivels freely on a rolled steel kingpin to eliminate binding of wheel flanges on curves and switches of short radii, giving smooth effortless movement.

ALUMINUM TOTE BINS

NP11—These aluminum bins, manufactured by Tote System, Inc., are designed for handling bulk materials.



They are said to eliminate product loss caused by breakage, spillage, sifting, dusting, pilferage and deterioration resulting from natural elements such as moisture or from rodent and insect infestation. The bin is a tight rectangular-shaped, aluminum container. Model A74 is 42" x 48" x 68⅝" with a capacity of 74 cu. ft. Loaded, the bin carries from 3000 to 4000 lb. depending on the product. Bins can be handled by overhead equipment, fork trucks and may be stacked. They have a nine-in. opening in the top with various types of discharge mechanisms available. They can be shipped via rail cars or highway trucks. They are likewise designed for in-plant operation with a variety of uses both at machines, between departments and in storage.

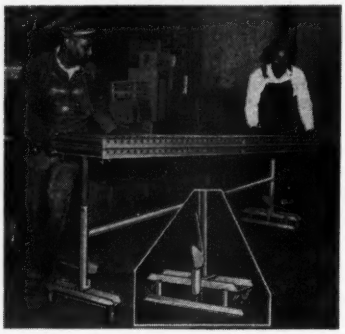
LIGHT-WEIGHT CONVEYOR

NP12—A light-weight, all aluminum bin-to-truck conveyor, the "Truck-Phil," has been introduced by the Phillips Conveyor Co. Ease of handling is said

to be a feature. One man is required to move the unit; airplane type aluminum construction is said to make the conveyor extremely rugged and durable. A truck can be filled in several minutes, according to the release. It is available in three lengths, 16½ ft., 18 ft. and 19½ ft. There is a solid apron under the belt. The conveyor can be used to load any kind of bulk material, it is stated.

FLOOR LOCK FOR PORTABLE CONVEYOR

NP13—The accompanying photo shows the hand-operated cam and lever Peli-



can floor lock for portable conveyor units. It is manufactured by Metzgar Co. In locked position, the angle iron floor bar raises the centers 1/16" off the floor and locks the entire end of the unit in position. Three point contact between the floor bar and the caster carriage to prevent wobble and twisting is provided by the spring cylinder and

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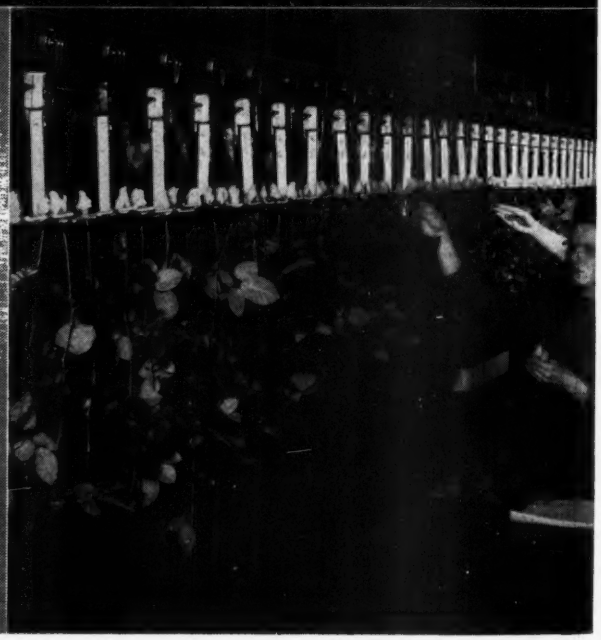
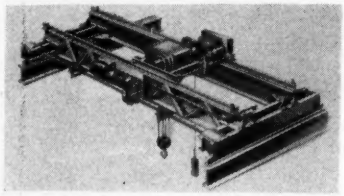


by two vertical pins welded to the floor bar near each end. Release of the cam engages the casters for moving the unit, and a strong spring holds the lock 1" above the floor free of obstructions.

OVERHEAD CRANES

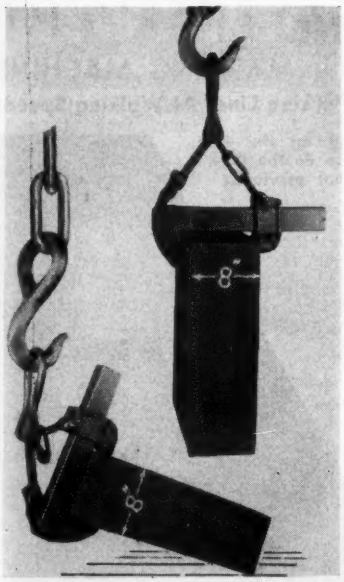
NP14—A line of overhead cranes has been introduced by the Whiting Corp. Known as E-type cranes, they are available in capacities ranging from 12 tons and spans from 20 to 60 ft. They are designed for intermittent duty and are



usually operated from the floor by means of a pendant push-button control station. Bridge or trolley may be supplied without motors for handpower operations or the crane may be supplied with cab control. Additional features include fluid drive and magnetic control, reduced headroom requirements, rigid bridge construction and streamlined design.

ADJUSTA-CLAMP

NP15—Merrill Brothers, manufacturers of drop forged material handling devices, has added the Adjusta-Clamp to its line. The device is designed to lift



any metal object up to 12 ins. thick that adjustable jaws can grip. The movable gripping jaw can be rapidly set by hand to accommodate the part to be lifted. It is further stated that the clamp can lift from horizontal to a vertical position without change of grip. Two models are available with one and three-ton capacities and safety factors of five to one.

LOCOMOTIVE CRANE

NP16—The TORQFLO Locomotive Crane has been developed by The Browning Crane & Shovel Co. It

operates with torque converter power which is similar in operation to the automatic transmissions in automobiles, and is available in three models having from 25 to 50-ton capacities. The TORQFLO drive is a hydraulic power transmission unit which is designed for smooth and fast operation of the travel, swing, hoist and boom hoist mechanisms. Shocks to cable, clutches and gear train are claimed to be eliminated through the automatic adjustments of the converter.

SMALL PARTS FEEDERS

NP17—This small parts feeder, manufactured by Perry Equipment & Engineering Co., consists of a bowl mounted on flexible leaf springs which

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is vibrated 3600 times per minute by an electromagnet. The magnet, energized by pulsating direct current, pulls the

bowls sharply down and back, then the leaf springs return them up and forward to their original position. The vibration moves parts up the spiral track and by means of various selection and rejection devices delivers them in proper position and alignment for the process involved. The photo shows feeders designed to handle small ceramic tubes. In addition to handling delicate and fragile parts, the equipment is designed for feeding through counting mechanisms, removing foreign matter and chips, also washing, coating and degreasing small parts. For additional information, mail the postcard bound into this issue.

CONVEYOR DELIVERY SECTION

NP18—The Rapistan Floor-Veyor Jr., permanently-mounted power belt conveyor, is now available with a nosed-over delivery section. This feature promotes smooth, easy transfer of materials from inclined to horizontal conveyor units, or vice versa. It may be used for moving goods between floors in warehouses, for loading-dock operations, or as a power booster in a gravity conveyor line. The nosed-over feature is especially valuable in the latter case when handling long paper cartons or fragile materials. The 10-in.-long nosed-over section is set at an angle of 15 degrees from the plane of the straight bed, adding three ins. to the pulley-to-pulley length of the company's regular Floor-Veyor Jr. A standard cam-rack bracket permits attachment of a feeder section or a direct hook-up with a gravity conveyor line. The nosed-over unit can be factory-installed on both 10 and 16-in. belt width units.

Correction. The dimensions given for the Adjustable Loading Platform, manufactured by Revolvator Co. (NP9, June FLOW), should have read 6'x8' instead of 6'x18', as stated in the item.

CRAWLER MOUNTED CRANE

NP19—The General Excavator Co. has announced a one cu. yd. capacity excavator and material handler, Model 420. One operating feature is air control of all major motions, such as swinging, hoisting, steering, boomhoist (up and down), swing brake, shovel crowd and retract, and shovel dipper trip. The operator sits before a bank of short throw levers and controls metering valves which apply the right amount of air pressure at the will of the operator,

allowing him to retain the feel of the load. Air cushion clutches are used on the swing reversing shaft and the countershaft. This type of clutch applies air pressure to moving parts through an expanding rubber tube. Through a special air seal, air power is taken through the drum shaft, and operates the large-diameter band type hoisting clutches. A special transmission on the deck, driven by multiple strand roller chain from the countershaft, provides two speeds, forward and reverse.

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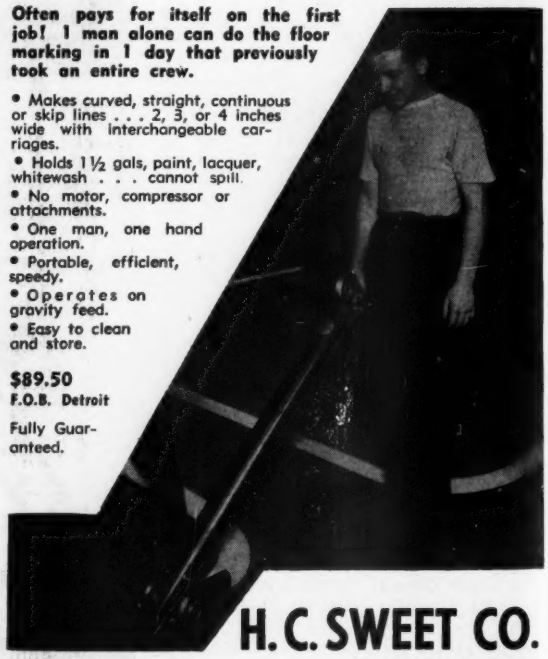

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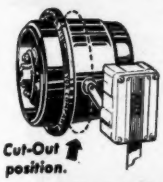

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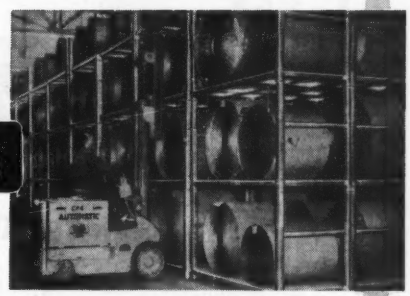
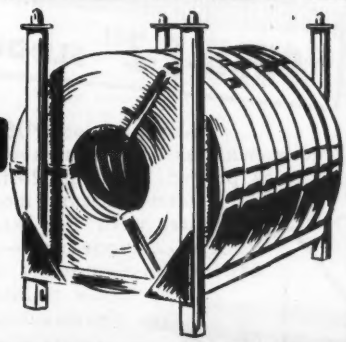


PORTABLE STOCK RACKS



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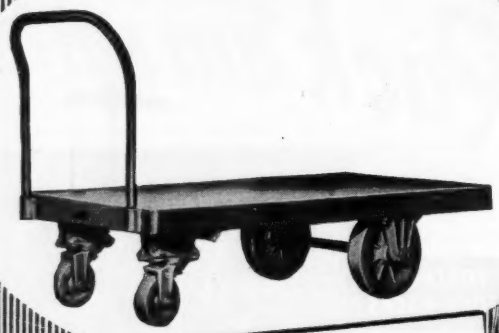

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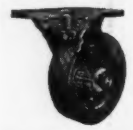
*Fully loaded, PUSH-E-Z starts and rolls *twice as easy* as an average hand truck . . . as proved by actual tests. These easier handling qualities assure more output from workers, with far less effort. And PUSH-E-Z ruggedness—far beyond the call of duty—virtually eliminates your truck maintenance and replacement expense.

"PULL-E-Z" Truck differs only in running gear from the extra-husky, cost-cutting "PUSH-E-Z".

PUSH-E-Z construction is extra-tough, extra-strong. Platform of 10-gauge steel is electrically welded to 3-inch rolled channel frame. Castered with famous FORGEWELDS, which swivel on chrome-steel ball bearings. Casters and wheels roll on Hyatt roller bearings. High pressure lubrication. Capacity up to 6,000 pounds. Prompt delivery.



ForgeWeld Casters Easy-rolling Longer-lasting

Write for detailed specifications today.

COST-SAVING MATERIALS HANDLING PRODUCTS

Motowlift Gas-Powered Hydraulic Lift Truck | Service Hand Lifter | Service Liftable | Service Electric Hydraulic Lifter | Service Hydraulic Loverlift | Service Leveler

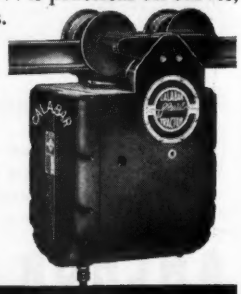
SERVICE CASTER & TRUCK CORP.

INDOOR MILES Made FASTER and SAFER

Executive Offices: Albion, Michigan
Plants at Albion, Michigan and Somerville 43, Mass.
See Your Classified Telephone Directory for Nearest Distributor

PUSH LOADS UP TO 5 TONS ON HOISTS OR CRANES

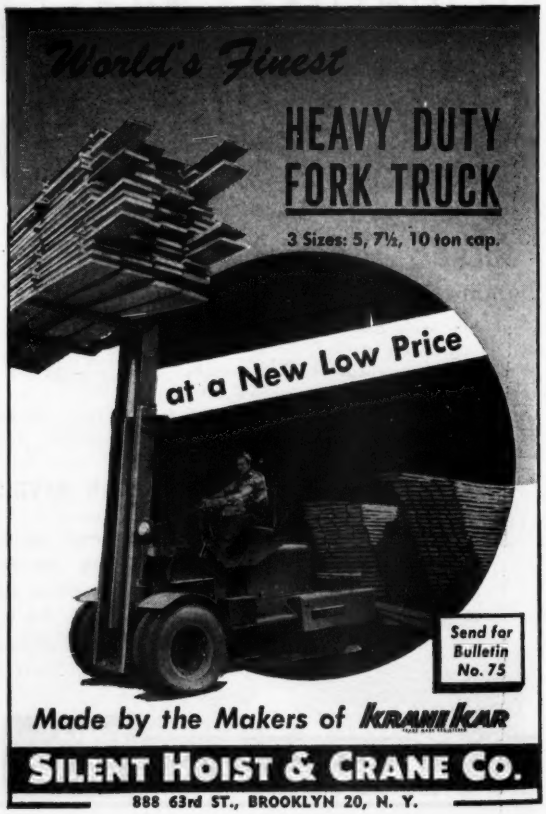
HERE'S SMOOTH STARTING TRACTOR POWER for propelling hoists on monorails and cranes. The compact, efficient Calabar *fluid* Tractor starts slowly, smoothly, without jerking or swinging the load. It's applicable to flat or tapered track . . . travels at speeds ranging from 50 to 250 FPM . . . is practical on curves, inclines and awkward passages. Gears, bearings and all wearing parts are totally enclosed and operate in oil bath. End plates are removable. Control is by pendant push button. Two sizes available. Write for illustrated catalog.



CALABAR CORP.

8414 Otis Street, South Gate, Calif.

calabar FLUID TRACTORS



Made by the Makers of KRANE KAR

SILENT HOIST & CRANE CO.

888 63rd ST., BROOKLYN 20, N. Y.

MEN IN THE NEWS . . .

(Continued from page 41)

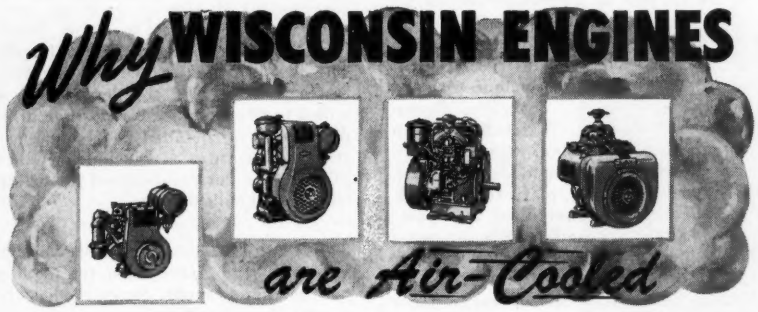
sions, to manager of manufacturing, Large Apparatus Divisions. Byron A. Case from assistant to manager of engineering, to manager of engineering, Small Apparatus Divisions. Frank T. Lewis from manager of manufacturing, Aeronautic and Ordinance Systems Divisions, to manager of manufacturing, Small Apparatus Divisions. Clarence H. Linder from assistant manager of manufacturing to assistant to the general manager. C. W. LaPierre from assistant manager, Aircraft Gas Turbine Divisions, to manager, Aircraft Gas Turbine Divisions.

GOULD Storage Battery Corp., Trenton, N. J., has advanced K. A. Vaughan, manager field engineering, to the newly created position of manager sales engineering. In his new post, Vaughan's duties will include not only the supervision of Gould's field engineers and service stations, but also the coordination of all matters pertaining to quotations, inquiries and negotiations at Gould's sales headquarters.

G. J. BERRY, vice president in charge of sales of The Electric Products Co., Cleveland, has announced the appointment of E. G. Schroeder to the position of sales manager. Previously associated with the company as field sales manager, and prior to that as district manager of its Detroit Office, Schroeder has a broad industrial sales background.

ELMER F. FRANZ has been elected treasurer of The Yale & Towne Mfg. Co. according to Gilbert W. Chapman, president. Fred Dunning, who has been treasurer since 1933, has turned over these duties to devote full time to his increased responsibilities as executive vice president and secretary. Franz was formerly comptroller of the Weatherhead Co. of Cleveland.

BAKER Industrial Truck Division of The Baker-Raulang Co., Cleveland, has announced the election of Robert H. Davies as vice president and acting general manager and Edward H. Remde as vice president. Davies joined Baker-Raulang last year as manager of engineering with supervision of all engineering functions of the company. Previously he was associated with the Lincoln Electric Co. Remde this year will complete 50 years of continuous service with the industrial truck manufacturing concern.



Air-Cooling, as developed and perfected by Wisconsin Motor Corporation engineers, has these important advantages for the power user:

1. Greatest freedom from cooling chores and troubles. More Service FROM the engine, less service TO the engine; fewer Man-Hours lost; more H.P. Hours on the job.
2. Most efficient cooling at all engine speeds and all temperatures, from sub-zero to tropical highs. The engine never runs out of AIR!
3. Lowest maintenance cost. Integrally cast flywheel fan eliminates all cooling "accessories" . . . nothing to get out of order, wear out, or require replacement.
4. Lighter engine weight and greater compactness . . . for most convenient portability and greatest installation adaptability as power components on original equipment.

These are some of the reasons why Wisconsin Engines most satisfactorily meet the requirements for all types of Material Handling Equipment utilizing power within a 3 to 30 hp. range. Specify "WISCONSIN" for heavy-duty dependability.

WISCONSIN MOTOR CORPORATION
World's Largest Builders of Heavy-Duty Air-Cooled Engines
MILWAUKEE 46 WISCONSIN

One Man Air Hoist

If you're thinking about a portable hoist as a burden-lifter in your plant . . . consider the Keller . . . it offers so many exclusive advantages.

It is so light in weight compared to other hoists of similar capacities . . . that one man can carry it, set it up and use it . . . without strain or injury. Just attach it to an air line and it goes to work.

Then, it has a fast lifting speed, 17 feet per minute at full load for the 500, 1000, and 2000-lb models. For 300-lb model, 75 feet per minute. Speed can be varied at will by the operator from creep to full capacity for either lifting or lowering.

Hoist is so durably built that it sets all-time low-cost records for maintenance.

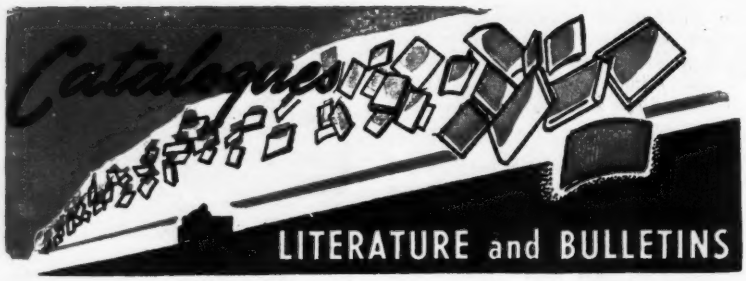
New Air Hose Trolley for I-Beam Suspension

To keep the Air Hose conveniently suspended, Keller now offers an I-beam and tramrail hookup. The new accessory supports the Air Hose, permits it to travel smoothly, effortlessly following the hoist at the will of the operator.

Air Hoists, Hoist Trolleys, Air Hose and Hose Trolleys are available through Keller branch offices and direct from the factory.

KELLER
Pneumatic Tools

KELLER TOOL CO., GRAND HAVEN, MICH.



The publications featured on these pages were written by experts. They are FREE publications. To obtain these use the postcard bound into this issue.

25—Safety Procedures . . . Procedures which cranemen and hitchers should follow to work safely and effectively as a team are contained in a 36-page pocket manual prepared by Allis-Chalmers Mfg. Co. It gives instructions for cranemen, hitchers and headhitchers and defines the extent of their authority and responsibilities. It illustrates standard crane signals, shows how crane operation and inspection are executed, and carries reference tables which specify the company's safe loads for wire rope, wrought iron and alloy steel chain, manila rope and eight-part braided slings.

26—Pneumatic Tires . . . This is the subject of an eight-page leaflet issued by The General Tire & Rubber Co. Five types of tires include silent-grip, traction tread, cleated rib, cleated, and rib tread. Features are said to be more air volume, more load capacity, increased stability and greater cushioning. Charts give industrial tire specifications for low and higher speed service, wheel specifications, and specifications for rigid and swivel caster forks. Several dozen pictures show a like number of uses for these pneumatic tires.

27—Brake Linings and Clutch Facings . . . A 100-page manual, offered by the Gray-Rock Division, Raybestos-Manhatten, Inc., contains data on brake linings and clutch facings for shovels, draglines, cranes, tractors and other industrial equipment. It illustrates and describes various types of friction materials suitable for the above equipment. Friction material locations on typical units are illustrated. Seventy-nine pages give friction material size data, equipment manufacturers part numbers, type of brake band with which the units are equipped, and friction material recommendations for specific parts of the various units. This publication is designed for users of most kinds of material handling equipment and should be a valuable addition to plant libraries. For your copy, mail the postcard bound into this issue.

28—Mobile Pallets . . . The Pallet Roller Co. is offering a pamphlet which illustrates and describes its roller-mounted steel pallet. Known as the Pallet Roller, it is designed for loading and unloading box cars, trailers and trucks. A lift truck places its load on the roller which is then moved to its location inside the truck. Features of the equipment include: heavy-gage steel frame and rollers; steel inserts for protection against damage from overloads; positive acting brake which locks one roller, holds solid on inclines; wide rollers which distribute weight evenly, straddle floor defects; 104 ball bearings for easy rolling with one ton and ton-and-a-half loads. Operating and construction data, action photos, charts and specifications are included. Circle No. 28 on the enclosed postcard.

29—Power Barrow . . . A power barrow for handling bulk and unit loads is the subject of a brochure issued by Kwik-Mix Co. Known as the Moto-Bug, it is designed for use for construction as well as general industrial applications. Design features include forward and reverse travel, controlled dump and direct steering. A detachable step is designed for riding with the load. The vehicle can be provided with an all-welded steel hopper, platform or forks. Photos show the equipment transporting such loads as sand, coal, scrap, gears and building brick. Capacity is 10 cu. ft. or 1200 lb., fork lift is 500 lb. to a height of 10 ins. Speeds range from 1½ to four MPH.

30—Magnesium Dockboards . . . A folder is offered by Magnesium Co. of America which contains data on its line of magnesium dockboards. The publication lists the following features. Rounded ends of safety curbs for greater turning radius; raised pattern safety tread; non-sparking magnesium, a safety factor; quarter round safety curbs to deflect wheels and prevent run-offs. Other features include hand holds in each corner for convenient handling; floor members braced to withstand abuse and act as a locking device; beveled edges to minimize jarring of load and equipment. Included are acyour copy, use the enclosed postcard.

31—Hand Pump . . . A high-vacuum hand pump, manufactured by Tokheim Oil Tank and Pump Co., is described in a folder now available. The equipment pumps a 20-ft. vertical lift under normal conditions and is said to be capable of vertical lift up to 28 ft. No foot valve is needed; it primes on a 20-ft.-lift. It pumps on both the forward and back stroke, assuring a steady flow of liquid. It is further claimed that operation is not affected by ice, dirt, scale, etc. The diaphragm is flexible and made of molded, reinforced synthetic material. The folder includes many photos and drawings, specifications and operating and construction data.

32—Crane Scales . . . Bulletin No. 501, issued by The A. H. Emery Co., gives data on its line of hydraulic and pneumatic weighing systems for measuring loads in transit. It contains information on load capacities, dial sizes and the remote load indicating or printing system which allows weights to be recorded at distances up to 1000 ft. from the scale. Suggestions are given on such factors as capacity, dial sizes recommended, eye level and tare load. For your copy, circle No. 32 on the postcard.

33—Safety Clamps . . . The Never-Slip Safety Clamp Division of Kensico Mfg. Co., Inc., has released a leaflet on its safety clamps for lifting plates, sheets, shapes and sections. Photos show clamps for both horizontal and vertical handling. Applications include racking plates, unloading plates and sections, transporting to storage or shops, handling during jobs at shear or punch presses and moving finished materials. The jaw bearing surface and the contacting surface of the lever have a milled toothed surface for positive gripping. Charts, detailed text, and construction features are included. Other photos show devices designed for lifting barrels and coils of strip.

34—Hand Truck . . . Schmidt-Veverly, Inc. will send a brochure on its line of Abco hand trucks. Seven models are described; specifications accompany each model. Wheel specifications are also included. Capacities of the trucks range from 400 to 500 lb., which are designed for handling case goods, cans, cartons, drums and baskets. The vehicles have welded steel frames, curved cross members, solid rubber wheels, all-electric welds, and a rear beam which is part of the nose plate. Members which connect the frame and wheels are designed for climbing stairs. A copy of this publication may be had by mailing the postcard.

35—Gas-Electric Power Units . . . A catalog page describes a new gas-electric power unit for electric industrial trucks. Known as Model H-A, it is manufactured by The Ready-Power Co. It has a four-cylinder engine, flexible type oil drain line, oil bath air cleaner and a five-gallon capacity fuel tank. Operating speeds range from 1075 to 1400 RPM. The power units are de-

OPPORTUNITIES

Men wanted Jobs wanted Lines available

Rates: for "Positions Wanted" $4.00 minimum, limit 25 words. For all other classifications $4.50 minimum for 25 words, each additional word 15c; boldface type for all capitals, $7.50 minimum for 25 words, each additional word 20c; limit 50 words. Box address counts as five words. All insertions are payable in advance.

These classified columns are not intended for the advertising of new products by manufacturers, their representatives, or their distributors. These columns are limited to Help Wanted or Positions Wanted advertisements, and for the offering of used equipment by the users of such equipment.

FOR SALE

FOR SALE: One Hopper Box Bag Conveyor, consisting of seven 20' heavy steel frame sections mounted on 6" ball bearing casters. Spur gear and pin connection, 24" asphalt treated belt, running over 4" rollers at 1' intervals. Five Horsepower motor and speed reducer. Stored in excellent shape. Ideal for moving of heavy package material in warehouses or on docks. Priced to sell. The Washington Brick Co., Muirkirk, Maryland.

FOR SALE: 3-Elwell Parker ELN-10 —5 Ton Platform Trucks. Platform 27"x66"—10" Low Position—62" Elevated. 84" Overall Height. With or without die pulling winch. Roller Chain Elevator Unit. Overhauled, Guaranteed 90 Days Warranty. WRITE, WIRE, PHONE Industrial Truck Service Inc., 3949 Lakeside Ave., Cleveland, Ohio.

FOR SALE: 1—Model NCRE-6 Crescent high lift platform truck 27" x 54" —62" lift. No battery. Sacrifice. E. A. Crawford, 20326 Bonniebank, Rocky River, Ohio.

REPRESENTATIVES WANTED

Qualified Sales Representatives wanted by established manufacturer of crane and monorail equipment in the following cities; Boston, Pittsburgh, Cincinnati, Atlanta. Industrial Monorail & Conveyor Co., 1819 Harlan St., Philadelphia 21, Pa.

Sales Representatives: To sell skids, platform trucks, dollies, fiber boxes, fiber box trucks. Exclusive territories. Commission. Give details regarding territory, principals, background. Box 7150 FLOW Magazine.

EQUIPMENT WANTED

DOLLARS FOR INFORMATION

We will pay 5% commission on all leads furnished to us, which result in our purchase of used handling equipment, such as fork trucks, pallet trucks, cranes, etc. Inform us of such equipment for sale and we will pay you commissions equal to 5% of purchase price if equipment is purchased.

A. & A. MACHINERY CORP.
1267 Flushing Ave. Brooklyn, N. Y.

IN FUTURE ISSUES

Effective Crane-and-Skid Handling Method, at Westinghouse.... The concluding part of the Canvas Belting Survey article.... How a centralized conveyor dispatch station ties in the flow between several buildings.... A three-sided tote box used in a foundry.... Mobile crane with a clamshell used for handling scrap rubber in a yard.... How a warehouse doubled its capacity in the same amount of space.... Buses move sideways through assembly. These and other articles will be found in future issues of FLOW.

signed for use on 4000-lb. fork trucks, 6000-lb. crane trucks and up to 10,000-lb.-capacity platform trucks. The publication contains operating and construction features and specifications. Close-up views of the model are labeled for component identification. Mail the postcard for your copy.

36—Open Head Drum Rocker . . . A four-page folder, offered by Williamson Adhesives, Inc., details its open-head drum rocker for draining 55-gallon steel drums. The rocker rack is slid under the drum, tilted horizontally and the container is ready to empty. According to the release, one man is able to easily handle the operations.

One man **and a C-F Lifter...**

One man and a C-F Lifter handle the sheet steel stock in and out of storage in this plant with ease, speed and economy. C-F Lifters can pick up, carry and unload more loads per hour using less man and crane time than any other method. Note how closely a C-F Lifter piles sheets—this results in great savings in storage space. Jaw adjustments for carrying different widths of sheets are made in a few seconds by the operator—an important feature when varying sizes of stock are used.
C-F Lifters are made in sizes to handle from 2 to 60 tons in standard and semi-special designs.

Write for the bulletin "C-F Lifters." It illustrates the many cost saving advantages of these lifters.

CULLEN-FRIESTEDT CO.
1320 S. Kilbourn Ave., Chicago 23, Ill.

Flow DIGEST

The subject matter contained in each of the following digests was obtained from the magazine to which we give credit below.

Foundry, February 1950. "Handling Materials in Metal Pouring", page 78. How monorail systems, cranes and conveyors are synchronized for most efficient flow; equipment is illustrated. Ladles are switched to a runway; pouring of the molds is done on mold conveyors.

Ceramic Industry, February 1950. "West Coast Giant Rises From Fire", page 62. A weekly production schedule of 23,000 dozen dinnerware pieces is maintained by Vernon Kilns of Los Angeles. A chain driven mangle used for casting saves 325 ft. of floor area. Layout features: mezzanine for mold making, overhead storage. Auxiliary services to main production flow increase efficiency.

Railway Age, March 25, 1950. "How Lackawanna Uses Specialized Handling Devices", page 606. Handling methods at this railroad terminal's piers: fork trucks equipped with a push-off device have reduced handling costs, increased safety, slashed damage to certain classes of freight. Other equipment includes scoop for handling rubber, plate type steel pallet and dolly and specially made trough (track) for unloading refrigerator cars.

Glass Industry, February, March and April, 1950. "Mechanization of Glass Industry." Layouts show use of conveyors, cranes, trolleys, mechanical shovels and other auxiliary handling equipment. Discussed are stages of machine development and its economic effect in manufacturing of plate glass, window glass and glass containers; period covered is from 1900 to 1949.

Industry & Power, February 1950. "Handling of Small Coals Involves Big Problems", page 81. Difficulties experienced in handling small sizes of bituminous coal, particularly during winter and spring months when coal may be wet or frozen; observations respecting handling of wet, sluggish coal; problems of thawing and storage; corrective measures which have proved helpful.

Industry & Power, January 1950. "Fork Truck-Pallet System is Money Maker for Whitney Blake", page 101. How manufacturers of shielded cables for electronic devices, drop wires, portable cords, and other electrical wire products use modern handling equipment. Firm has increased its use of trucks since 1947. Savings have resulted through continuous material flow. Also:

"Roving Tractors Distinguish Material Handling at Draper", February 1950, page 100. How a New England manufacturer of looms and textile equipment keeps 54 industrial trucks fully utilized through a central traffic control system and coordination of all material handling activities. Results: substantial savings in manhours and floor area.

Railway Age, February 25, 1950. "New Type Coal Pier Speeds Tidewater Coal Loading", page 382. Four ships are served at once; pier has potential loading capacity of 6000 tons per hour, equivalent to 2800 cars per day. Handling equipment: belt conveyors which transport coal from car dumper, inshore from pier, to four traveling towers, each with its own conveyor system.

Speedways Gravity Conveyors are light in weight, but move a mighty stream of goods. So light in weight that even a 10' section is easily portable, it can sustain weights of 60 to 70 lbs. per foot.

Where you are moving products with flat bottoms use Speedways *Wheel* Conveyors, otherwise use SpeedTUBE Roller Conveyors—but in any case, use Speedways for low cost, labor saving material handling.

Available from stocks in principal cities, standard 5' and 10' lengths, 45° and 90° curves and standard widths of 12", 15", and 18", you can get the Speedways Conveyors you need—wherever you are.

Write for literature on Speedways Conveyors complete line of light duty gravity conveyors and endless belt boosters. We will also tell you the Speedways representative nearest to you.

Also manufactured and stocked in Canada.

KEEP 'EM ROLLING WITH SPEEDWAYS CONVEYORS, INC.

1242 Niagara St.
Buffalo, N. Y.

Represented by experienced Material Handling Equipment Engineers in principal cities.

BUY WILCO PALLETS
FROM
W. E. "BILL" DUERSTEN CO.
19 S. LaSalle St. Phone: RA 6-1992
IN THE WINDY CITY OF CHICAGO

Colonel WILCO in Chicago

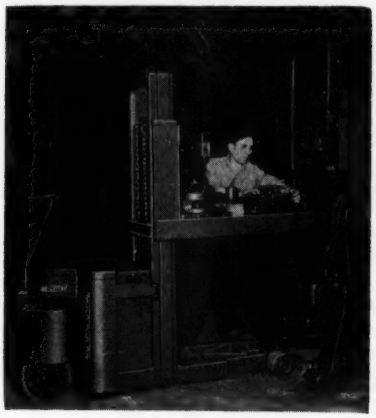
WILLIFORD MFG. CO.
Box 6095-F, Buntyn Station
MEMPHIS 11, TENNESSEE

THE SPEED

With Which a Materials Handling Job May Be Accomplished Depends to a Great Extent Upon the Proper Selection of the Right Equipment.

GO-GETTER

WALK-ALONG POWER LIFT TRUCK



FILLS THIS ORDER

Extreme ease of maneuverability. Dual equalized 12" x 3½" drive wheels providing 7" of traction surfaces using differential. Deadman type finger-tip directional control at top of balanced handle. Two-speed forward and reverse: Automatically controlled electric brake. Anti-friction ball and roller bearings throughout. Operating at a high standard of efficiency.

IN THE FOLLOWING DESIGNS:
LOW LIFT PLATFORM
LOW LIFT PALLET
HIGH LIFT STRADDLE TYPE
HIGH LIFT COUNTERBALANCED FORK TYPE
HIGH LIFT PLATFORM TYPE
PUSH-PULL TRACTOR

YOU OWE IT TO YOUR ORGANIZATION TO SEND FOR DETAILS!

Also the famous Red Giant Lift Trucks, Revolvator Portable Elevators, Freight (Hydraulic and Traction) Elevators, and many related materials handling items.

Designers • Manufacturers
Materials Handling Equipment

8737 TONNELLE AVE. NORTH BERGEN, N. J.

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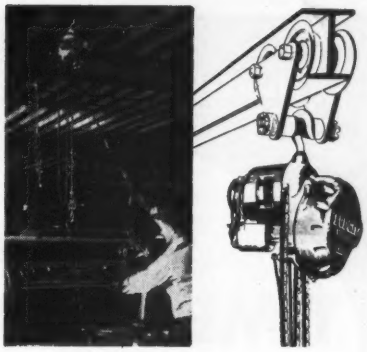

Unthought-of savings

A 'Budgit' Electric Hoist saves you many minutes in every working hour when it does the lifting on your production, assembly, and inspection lines. When translated into the increased production your workers will do when all their energy isn't wasted by useless lifting, this time saved by a portable 'Budgit' Hoist means profits for you and more money for your workers.

'Budgit' Hoists are complete lifting and load-handling units in themselves. All you need do is to hang them up, plug into the nearest electric socket, and they start to work lifting tools, machine parts, machines, or whatever the load is you want lifted. It takes but little to run a 'Budgit' all day long, day after day, so that operating costs are almost nothing. The special safety features built into every 'Budgit' Hoist prevent accident and injury such as rupture, sprained backs, strained muscles and ligaments. This means added savings for you.

Whatever your business and, regardless of the kinds of loads to be lifted, let a 'Budgit' Hoist do your lifting.

Made in sizes to lift 250, 500, 1000, 2000, and 4000 lbs. Prices start at $119. Write for Bulletin No. 391.

MAXWELL MANNING MOORE INC. TRADE MARK

'BUDGIT' *Hoists*

MANNING, MAXWELL & MOORE, INC.
MUSKEGON, MICHIGAN

Builders of 'Shaw-Box' Cranes, 'Budgit' and 'Load Lifter' Hoists and other lifting specialties. Makers of 'Ashcroft' Gauges, 'Hancock' Valves, 'Consolidated' Safety and Relief Valves, 'American' Industrial and 'Microsen' Electrical Instruments.

Use Self-Dumping Containers

50%
SAVING OF
TIME AND MONEY
BY USING
ROURA Self-Dumping HOPPERS

Only ROURA Has the Exclusive Instant Release (Patent Pending) Handle

Handling wet or dry, hot or cold, bulky materials quickly and easily, the ROURA is simple to operate—only one man is required for distributing and unloading—and he does this in much less time than ordinarily required under old-fashioned manual methods. Thousands of Roura Hoppers (which fit any standard fork or platform lift truck) are in constant daily operation, serving and saving for such firms as Owens-Illinois Glass, Corning Glass, National Fireproofing, General Motors, Ford, Chrysler, American Brake Shoe, General Electric, Westinghouse, Western Electric, American Steel Foundries, International Harvester, John Deere, etc.

By a simple lift of the exclusive release handle, the ROURA HOPPER dumps, rights and locks itself securely. Sizes — ½, ¾, 1, 1½ and 2 cubic yards; the ROURA HOPPER can also be designed for flat trucks and in other sizes to meet specifications. Also, it can be equipped with special flanges that permit stacking to desired tiers for storage or future distribution of materials — conserving valuable floor space. Priced below all competition, the ROURA will quickly pay for itself many times over.

Write today for detailed brochure.
"You Can Save 50% Labor-Time"

ROURA IRON WORKS, Inc.
1411 Woodland Ave. Detroit 11, Mich.

Literature Available From Advertisers In This Issue

(Check corresponding numbers on the enclosed card for the free literature listed below).

A-1. FRICK-GALLAGHER MFG. CO. This company is offering Folder 220 on its line of rotary storage bins; a wide range of other equipment is also shown.

A-2. WESTINGHOUSE ELECTRIC CORP. Bulletins describe fully its Rectox Battery Chargers, designed for all types of industrial truck batteries.

A-3. GENERAL ELECTRIC CORP. will send data on its crane-drive equipment, which gives positive control for all kinds of crane operations.

A-4. TRUSCON STEEL CO. A line of steel boxes and steel skids is thoroughly treated in a catalog offered by this company.

A-5. JOHN A. ROEBLING'S SONS. The "Roebling Sling Data Book" gives information about slings and sling accessories, dimensions and lifting data.

A-6 HYSTER CO. For information on its new 2000-lb. truck, the Hyster 20, use the postcard bound into this issue.

A-7. AMERICAN CHAIN & CABLE. This company will send detailed information on its line of Double ACCO-LOC Cable Laid Grommets, wire rope slings.

A-7. THE STANLEY WORKS. Case studies illustrate and describe economies effected in shipping rooms with the use of steel strapping.

A-9. TOWMOTOR CORP. is offering an illustrated Publication which gives examples of the company's fork trucks in a wide variety of operations.

A-10. THE PRIME MOVER CO. The company's powered barrow, designed for bulk or load units, is the subject of a brochure. Use the postcard.

A-11. RAPIDS-STANDARD CO. Specifications and other data are offered on its line of cold-forged casters with capacities from 140 to 400 lb.

A-12. BAKER-RAULANG CO. Its FT 3000 and 4000 lb. capacity fork truck is the subject of a publication offered by the company.

A-13. ALLIS-CHALMERS is offering complete descriptive literature on the HD-5G and Tractor-Shovel. Circle A-13 on the enclosed postcard.

A-14. INTERNATIONAL STAPLE & MACHINE CO. will send illustrated literature on its retractable anvil staple machines. Use the postcard.

A-15. DAVE FISCHBEIN CO. Its portable electric bag closer is fully illustrated and described in a folder. Capacity: 200 bags per hour.

A-16. TOTE SYSTEM, INC. This company is offering publications on its line of bins designed for handling bulk goods in the plant and in shipping.

A-17. E. W. BUSCHMAN CO., INC. Bulletin No. 41 contains engineering data on its line of cable trolley conveyors. Circle A-17 on the postcard.

A-18. H. C. SWEET CO. For further information on this company's line of floor marking equipment mail the postcard bound into this issue.

A-19. EQUIPMENT MFG. INC. is offering publications on its portable stock racks, coil racks and pallet racks.

A-20. CALABAR CORP. Detailed engineering and operating data on its fluid overhead tractors is found in an illustrated catalog.

A-21. WISCONSIN MOTOR CORP. Three to 30 HP engines with one, two and four cylinders are the subject of bulletins offered by the company.

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